LIBRARY FEB 16 1945

THE BOSTON Medical and Surgical JOURNAL

OFFICIAL ORGAN of THE MASSACHUSETTS MEDICAL SOCIETY and of THE NEW ENGLAND SURGICAL SOCIETY

$5 per Annum. 15c per copy
Vol. CLXXXIII, No. 19

THURSDAY, NOVEMBER 4, 1920

Published weekly in Boston, at 126 Massachusetts Avenue

CONTENTS

ORIGINAL ARTICLES

INTERPRETATION OF THE WASSERMANN REACTION. *By William P. Boardman, M.D.*, Boston.

THE DIAGNOSIS OF PRIMARY SYPHILIS. *By Henry D. Lloyd, M.D.*, Boston.

LEAD IN THE URINE IN NEURO-CIRCULATORY DISTURBANCES. *By C. A. McDonald, M.D.*, Providence, R. I., and *Henry McCusker, M.D.*, Providence R. I.

A REVIEW OF THE RECENT WORK ON AMOEBIC DYSENTERY. *By William Allan, M.D.*, Charlotte, N. C.

THE AFTER-TREATMENT OF A DISLOCATED ELBOW. *By Ernest T. Saeger, M.D.*, Boston.

CLINICAL DEPARTMENT

THE USE OF THE THERMOMETER IN MENTAL DISEASES. *By E. D. Bond, M.D.*, Philadelphia, Pa.

EDITORIAL

DIETARY EXPERIMENTS IN PRODUCING PELLAGRA.

For complete table of contents, see first text page.

THE NEXT ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY WILL BE HELD IN BOSTON, TUESDAY, MAY 31, AND WEDNESDAY, JUNE 1, 1921.

The New Mayo Clinic Volume

PARTIAL CONTENTS

This is by far the largest Mayo Clinic volume ever published. It contains 112 separate contributions (1331 pages), and 496 illustrations, 6 of them in colors. The range of subjects covered is wide—there are 15 articles on the alimentary canal; 29 on the urogenital organs, including 8 on the ductless glands; 2 on the heart; 8 on the blood; 4 on the spine and syphilis; 27 on the head, trunk, and extremities; 3 on the nerves; 9 on technic, and 14 on general subjects.

Relation to ulcer of arteries supplying stomach and duodenum
Angioma of the stomach
Operability of gastric cancer as determined by x-rays
Cancer of stomach: surgical treatment
Effects of duodenectomy
Management of duodenal ulcer
Treatment in bleeding type of ulcer.
Early lesions in the gallbladder.
Jaundice and its significance
Hematogenous infections of the kidney
Recent advance in renal diagnosis
Surgery of the kidney
Stone of the kidney
Surgery of the urinary bladder
Treatment of urethral carbuncle
Prostatic diseases
Basal metabolic rate
Thyroid diseases
Organ transplantation
Dangers in blood transfusion
Diagnostic methods in the anemias
Splenectomy in anemia
Syphilis in railroad employees
Tuberculosis of the spine
Radium in eye diseases
Mastoiditis
Ankylosis of jaw
Tonsillectomy in myositis and arthritis
Surgery in cysts of thyroglossal tract
Influenza and pneumonia
Antistreptococcus serum in influenza
Pulmonary suppuration
Fractures as potential deformities
Etiology treatment of acute poliomyelitis
Prophylactic and autogenous lipovaccines
Protein sensitization in asthma and hay fever
Experimental surgical shock.

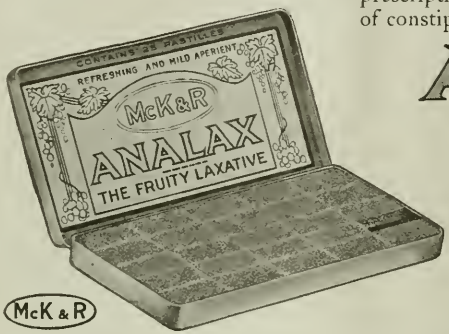
Octavo of 1331 pages, illustrated. By WM. J. MAYO, M.D., CHARLES H. MAYO, M.D., and their ASSOCIATES at The Mayo Clinic, Rochester, Minn. Cloth, $12.00 net.

W. B. SAUNDERS COMPANY — Philadelphia and London

Entered at the Post-office at Boston as second-class matter.

A Pleasing Prescription

Agreeable to take, gentle in action, prompt and satisfactory in results one of the most pleasing prescriptions a physician can write for the relief of constipation is—



ANALAX

The Fruity Laxative

Analax, which looks and tastes like candied fruit, is a simple combination of Agar-Agar and phenolphthalein with fruit juices. Especially suitable for children and delicate women, because of its gentle, non-gripping action.

To physicians we are glad to send test quantities on request. Box of 100 pastilles to hospitals.

McKESSON & ROBBINS

Manufacturing Chemists

Established 1833 91 Fulton Street, New York

PRIMARILY

ELIXIR LACTOPEPTINE acts as a prompt *and* efficient **digestive aid** throughout the alimentary tract.

But as a **vehicle** it occupies a place *of* equal distinction.

For when the stomach rebels *and* will no longer tolerate **KI** or other harsh drug

ELIXIR LACTOPEPTINE overcomes the difficulty *and* makes possible a continuation *of* treatment.

ELIXIR LACTOPEPTINE renders disagreeable *and* irritant drugs **PLEASING** to the eye—**ACCEPTABLE** to the palate **GRATEFUL** to the stomach.

Lactopeptine

THE ORIGINAL MULTIPLE ENZYME PRODUCT

THE NEW YORK PHARMACAL ASSOCIATION

YONKERS, N. Y.

Secretion Digestion Metabolism Expenditure of Energy

"The whole of the energy of the chemical changes is set free in the form of heat. Even during rest, "changes are going on in the gland-cells, changes which involve the taking up of food material and its "assimilation."

* * * * * *

"The act of secretion involving, as it does, the expenditure of energy, can be carried out only at the "expense of chemical changes in the cell."

Starling's Physiology, p.756.

GASTRON is stored-up energy extracted directly from the stomach gland-cells—the "potencies" of the complex principles, enzymes, associated organic and inorganic constituents of the activated gastric-gland secretion.

GASTRON saves in the cost of digestion, particularly for the sick, where digestion sometimes comes at "too high a price."

Fairchild Bros. & Foster
New York

Ready for Use!

A CAREFULLY prepared and alkalinized solution of Arsphenamine "606" furnished in a form available for instant use, in the office or at the bedside.

SOLUTION ARSPHENAMINE-LOWY S.A.L.

The physician breaks off the ends of the ampoule, attaches the rubber tubing, inserts the needle, and injects. No mixing, no waiting, no bother.

Fully approved by the A. M. A. Council of Pharmacy and Chemistry, and prepared under license by the U. S. Public Health Service.

Interesting literature sent on request

LOWY LABORATORY, Inc., 361 Plane St., Newark, N. J

Sales Representatives: Memphis, McCall Bldg., Boston, 755 Boylston St., Cleveland, 39 Euclid Arcade.

Massachusetts General Hospital
Pay Consultation Clinic

To aid in diagnosis in cases requiring the advice of several specialists, members of the staff of the Massachusetts General Hospital will hold clinics at the hospital Tuesday and Friday afternoons at 1.30 P.M.

Physicians desiring to make use of the clinic should refer their cases by letter addressed to the Consultation Clinic, giving a brief history. The object being to establish a diagnosis, no treatment will be given, nor will patients be admitted to the hospital except to complete an examination which cannot be completed in the limited time of the clinic.

Patients are referred back to the doctor who sends them to us. Several visits may be necessary to establish a diagnosis, and when ordered by the clinic staff, no additional charge will be made for such visits. Upon completion of the examination a report will be sent to the doctor who refers the case.

No appointment is necessary.

No treatment given.

Hours: Tuesdays and Fridays, 1.30 P.M. to 2 P.M.

A letter from a doctor is required in every case.

Consultation	**$10.00**
X-Ray	**3.00 to 10.00**
Laboratory examination	**2.00**
Cystoscopy	**3.00**
Electrocardiogram	**10.00**

Departments represented:

Medicine	**Surgery**
Genito-urinary	**Orthopedics**
Syphilis	**Skin Diseases**
Pediatrics	**Neurology**
Nose and Throat	**Eye and Ear**

F. A. WASHBURN, Sec'y,
General Executive Committee.

Metchnikoff

brought a new gospel for the prolongation of life —a clean colon.

Metchnikoff had his own theories as to the accomplishment of this desirable state, and many others have been advanced, but none have been found to be more satisfactory than "a wineglassful of Pluto Water before breakfast each morning."

Make a test of the next case of obstinate intestinal stasis that presents itself. You'll be converted.

PLUTO

FRENCH LICK SPRINGS HOTEL CO.
French Lick, Indiana

Current Literature Department

ABSTRACTORS.

GERARDO M. BALBONI, M.D. GEORGE G. SMITH, M.D.
LAURENCE D. CHAPIN, M.D. WILLIAM D. SMITH, M.D.
JOHN B. HAWES, 2D, M.D. LESLEY H. SPOONER, M.D.
EDWARD H. RISLEY, M.D. WILDER TILESTON, M.D.

PATHOLOGY.

A COMPARATIVE STUDY OF THE MECHANISM OF WOUND HEALING.

LOEB, L. (*The Jour. of Med. Research*, Jan., 1920).

In response to the wound stimulus, changes take place in the epidermis which consist in amoeboid cell movements, mitotic cell multiplication, increase in cell size, increase in thickness in the stratum germinativum, in the number of cell rows and in the number of cells. All these variables with the exception of the number of cells, were followed quantitatively under different conditions of depth and size of wounds and were studied comparatively in different species. The curve which represents the changes in all these variables is profoundly influenced by the closure of the wound. This is the event in wound healing towards which cell activities tend and which is the turning point in the various curves.

The amoeboid movements of the epidermis as evidenced by the formation of the tongue seem to take place steadily until closure is reached. The two plates of epidermis, coming from opposite sides and meeting, exert upon each other a pressure which varies in strength under different conditions. In our experiments the increment in the length of the tongue remained approximately the same during different periods of wound healing. On the whole, the amoeboid movement is continuous throughout the different periods of wound healing or it may perhaps show a gradual slight decrease. Exceptions from these rules occur in certain cases.

Movements of the epithelium seem, however, not to be limited to cells adjoining the wound, but to extend from farther back toward the centre of the defect; a movement of cell rows from the old epithelium towards the centre of the defect seems to occur and to continue until the period directly following wound closure.

Increasing length and increasing depth of the wound within the ranges examined increase all the activities of the tissues. Increasing length of the wound increases directly the rapidity of the amoeboid movement. The greater the relation of size of defect to circumference of living epithelium, the more rapid is the amoeboid movement; likewise the contraction of the wound is more marked in larger wounds. Contraction of the wound is, however, a later manifestation of wound healing than epidermal amoeboid movements.

The significance of contraction varies in different species. The greater contraction combined with the more rapid amoeboid movements may lead to a more

(Continued on page vi.)

Adrenalin in Medicine

3—Treatment of Shock and Collapse

THE therapeutic importance of Adrenalin in shock and collapse is suggested by their obvious and constant phenomenon—a loss in blood pressure.

Treatment aims to raise the blood pressure by increasing peripheral resistance. As a rapidly acting medical agent for the certain accomplishment of this object Adrenalin is without a peer. In cases of ordinary shock it is best administered by intravenous infusion of high dilutions in saline solution. Five drops of the 1:1000 Adrenalin Chloride Solution to an ounce of normal salt solution dilutes the Adrenalin to approximately 1:100,000, which is the proper strength to employ intravenously. A slow, steady and continuous stream should be maintained by feeding the solution from a buret to which is attached a stop-cock for the regulation of the rate of flow.

In those cases marked by extremely profound and dangerous shock or collapse the intravenous method may prove too slow or ineffective. Recourse should then be had to the procedure described by Crile and called centripetal arterial transfusion. Briefly it consists in the insertion into an artery of a cannula directed *toward* the heart. Into the rubber tubing which is attached to the cannula 15 to 30 minims of Adrenalin 1:1000 is injected as soon as the saline infusion begins.

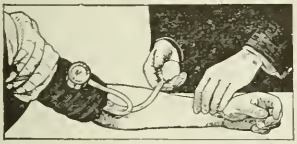
The effect of this is to bring the Adrenalin immediately into contact with the larger arteries and the heart. Sometimes, even in apparent death, the heart will resume its contractions, thereby distributing the Adrenalin through the arterial system and accomplishing the object of this heroic measure—resuscitation and elevation of the blood pressure.

ADRENALIN ORIGINAL P.D.&Co. TRADE MARK

Parke, Davis & Company

SANBORN

Blood Pressure Outfit



Thorough accuracy, extreme durability, quick and dependable determination of systolic, diastolic and pulse pressures—these are guaranteed the user of the Sanborn Outfit.

Approved by the U. S. Army and Navy, insurance companies and thousands of physicians throughout the country.

Aneroid gage; washable armband, 42 inches long; Ceylon rubber bag, 5 × 9½ inches, reinforced by durable fabric; specially made release valve; essential parts double strength; packed in case of selected leather.

PRICE — $17.50

May we not send you an outfit for trial in your practice? No advance payment required. Just send your request on your business stationery.

Made, guaranteed and sold direct to physicians by

Sanborn Company Makers of Scientific Instruments

1043 Commonwealth Ave., Boston, 47, Mass.

Seasonal and Specific Pollens

Diagnostic and Treatment Solutions of the various Pollens used in the treatment of Hay-fever.

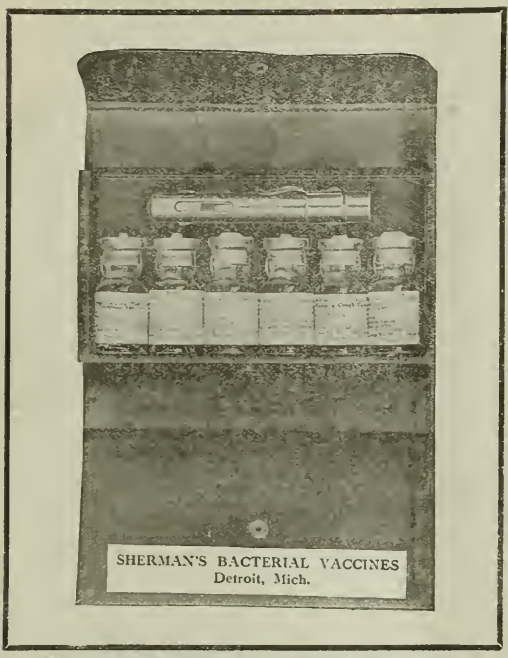
Timothy	Ragweed
Red Top	Corn
Daisy	Goldenrod
Dandelion	Rose
Orchard Grass	June Grass
Sunflower	and Various Others

Above Carried in Stock at All Times

Also: **Food Proteins**
Epidermal Proteins
Bacterial Proteins

E. F. MAHADY COMPANY

671 Boylston St. (Near Copley Sq.)
Boston, Mass.



Probilin
BILIARY AND HEPATIC
Pills

Fifteen years of extensive universal use of Probilin Pills have demonstrated that by early diagnosis and logical medical treatment a great many gall stone cases can be prevented from reaching the stage of indispensable surgical intervention.

Indispensable operation.

That's the point.

So many are performed that are not.

Probilin Pills literature on request.

MADE IN U.S.A.
FURNISHED SIXTY IN AMBER VIAL WITH GREEN LABEL AND RED SEAL AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

(Continued from page iv.)

rapid closure of the larger wounds in certain species. In those species in which, as in the rat, contraction plays a more subordinate rôle, the closure takes place earlier in the smaller than in the larger wounds. All this applies to the range of sizes of wounds examined. Shallow wounds close more rapidly than deeper wounds.

Length and depth of wounds influence also the other variables which depend on cell multiplication and changes in cell size. This effect is to a great extent an indirect one, mainly depending on the time of closure. The later the closure, the greater the increase in these variables, the higher the maxima. It is, however, possible that there exists in addition a direct effect of size and depth of wounds on these variables, the larger and deeper wounds exerting a greater effect than the more shallow and smaller wounds.

All the activities of the epidermis during wound healing, the amoeboid cell movements as well as production of living tissue, show an intensity which on the whole is parallel to the energy displayed by the tissue in the normal state. However, the wound stimulus may lead in some species to a greater use of reserve energy than in others. The maximal as well as average increase in size of cells and nuclei during wound healing, if expressed in percentage of the normal figures, is very similar in all the species. The ratio between size of cells and nuclei is characteristic for each species; it is, on the whole, maintained in wound healing as well as in the normal tissue, although some shifting in the ratios occurs.

The so-called physiological regeneration of tissues is not a regenerative process, but is the expression of a primary inherited tendency to multiply, inherent in certain tissues and characteristic for each species. This primary tendency to grow and multiply determines, on the one hand, the intensity of cell multiplication and desquamation, and, on the other, the normal structure of the tissue.

An attempt has been made by us to explain theoretically the various phenomena measured during wound healing. The reactions seen in wound healing are considered essentially as reactions of cells toward foreign bodies. The phenomena observed in amoebocytes are taken as the prototype of these changes. Surface changes in cells leading to phenomena of agglutination occur in response to these stimuli. Amoeboid movements, as well as cell multiplication, are caused by the same environmental changes. Association of stereotropism and of a tendency towards centrifugal growth explain the extension of tissues, both reactions taking place in response to the same stimulus. The centrifugal movements might result, if the cells moved constantly in the direction towards a change in electrical potential. Amoeboid movements, phagocytosis and formation of foreign body giant cells represent different manifestations and degrees of the same reaction. Intense degrees of stimulation may lead to pathological reactions, such as agglutination of cells on the one hand and amitotic division of nuclei on the other, the latter taking the place of mitotic division of cells which occurs under normal conditions. It is pointed out that such a combination of syncytial formation with intense migration and amitotic division of nuclei leading to the production of plasmodia are also found in certain other cases in which stimulus is of a different character (chorionic wander cells). [E. H. R.]

RADIUM

Radium salts of the highest purity for use in surgery and gynecology. Deliveries on the basis of U. S. Bureau of Standards measurement.

We guarantee that the radiations of our Radium salts are due solely to Radium element and its own decomposition products.

Our Medical Staff will give instruction in the physics and therapeutics of Radium. "The National Radium Bank" instituted by this corporation.

We manufacture improved applicators, screens and other special equipment made with alloys of our own development, also apparatus for the purification and concentration of Radium emanation.

Information on request.

THE RADIO CHEMICAL CORPORATION

56-58 Pine Street, New York
Telephone, John 3141

Plants and Laboratories: Orange, N. J.
Mines: Colorado, Utah

BENZYLETS

lower high blood pressure

by their vaso-dilator action.

Including cases with nephritis, but barring arterio-sclerosis for obvious reasons, the reported results are excellent.

No bad effects have been found from prolonged use of this safe non-narcotic opium substitute. Relief from the pericardial pain is reported; even effective in angina, both pseudo and true.

Your druggist can supply them in boxes of 24.

"BENZYLETS" **SHARP & DOHME**

LISTERS DIABETIC FLOUR
ABSOLUTELY STARCHLESS AND SUGARLESS

LISTERS Diabetic Flour is made by our own original, exclusive process. A blend of specially prepared caseins; contains no purins; entirely free from starches and sugars. About 95% is assimilated and 90% goes into energy.

SELF RISING—Extraordinarily versatile. Easily made into strictly non-carbohydrate Diabetic Bread, Cookies, Muffins, Biscuits, Noodles, Pancakes, Dumplings, French Toast, etc.—delectable to both the eye and the palate; nourishing; healthful; and of great assistance in breaking up the depressing monotony of the usual Diabetic diet.

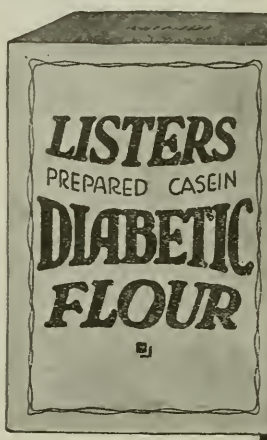
Packed in Small, Carefully Measured Boxes

each containing just enough flour to make one loaf of Diabetic Bread —the right amount per day for the average patient.

A Month's Supply—30 boxes $4.85
Fifteen Days' Supply—15 boxes 2.75

Will be sent direct to the physician or to his patient. Or write us for name of our Agent in your locality

LISTER BROS., Inc.
405 Lexington Avenue, New York City



The Diet in Typhoid

AND OTHER FEVERS AND DISEASES PREVALENT AT THIS SEASON

As the intestinal tract is seriously involved in Typhoid fever, the dietetic problem is one of first consideratiom. A liquid diet is largely essential in which connection "Horlick's" has important advantages, being very palatable, bland, and affording the greatest nutriment with the least digestive effort.

Samples Prepaid Upon Request

Avoid imitations by prescribing "Horlick's the Original"

Horlick's Malted Milk Co., Racine, Wis.

Anusol
HEMORRHOIDAL Suppositories

If we were to use the superlatives which physicians all over the world have applied to Anusol Suppositories during the last twenty years, we would most certainly be accused of making exaggerated claims.

So we are not going to do it.

But we will gladly send you a sample.

And let you see what some physicians say about them.

MADE IN U.S.A.

FURNISHED TWELVE IN GREY BOX WHITE, RED AND BLACK LABEL AT BEFORE-THE-WAR PRICE.

SCHERING & GLATZ, INC. NEW YORK

Truly Tasteless

castor oil, secured by hyper-refinement, without addition of disguising substances, or subtraction of physiological principles is available for professional prescribing in the form of

KELLOGG'S TASTELESS CASTOR OIL

which is prepared

ESPECIALLY FOR MEDICINAL USE

It does not offend the palate, disturb the stomach or irritate the bowel mucosa.

Kellogg's Tasteless Castor Oil is ideal for use in children, invalids, convalescents, before or after operation, during pregnancy, and as an important part of the efficient treatment of intestinal stasis, auto-toxemia, acidosis, and to assist in breaking up a cold, or allaying bronchial irritation, etc.

Interesting booklet—and sample if desired—on request.

Sole Distributor

WALTER JANVIER, Inc., 417-421 Canal Street, New York, N. Y.

BARGAINS

Now is the time to pick up some excellent bargains in used X-Ray and Electro-Medical Apparatus at a fraction of its retail price. All apparatus is in good working condition and will be delivered and installed free of charge. Following is a partial list:

X-Ray Apparatus

3 Interrupterless X-Ray Transformers
3 Scheidel Western X-Ray Coils
1 Horizontal Fluoroscope
1 Hogan Silent Transformer
Miscellaneous lot of Gas X-Ray Tubes
3 Dental X-Ray Coils

Therapeutic Apparatus

1 Model "F" Campbell High Frequency Coil
1 Model "E" Campbell High Frequency Coil
1 Model "I" Campbell High Frequency Coil
1 Model "E" Thompson-Plaster Coil
1 Strong Ovington High Frequency Coil
1 Victor Multiplex Sinusoidal Machine
1 Victor Sun Arc Lamp

Call for a demonstration

Clapp Anderson Co.

Suite 431
120 Boylston St. Boston, Mass.

B. B. CULTURE

The season for colds and various throat infections is at hand.

Many physicians have found that a highly viable liquid culture of Bacillus Bulgaricus is of much worth in the treatment of these conditions.

We offer B. B. CULTURE for your consideration.

B. B. CULTURE LABORATORY
INCORPORATED
YONKERS, NEW YORK

LOESER'S INTRAVENOUS SOLUTIONS

A Pharmacist's Contribution to Progressive Medicine

Sterile stable solutions of U. S. P. and standard salts prepared by a rigid laboratory method so as to be acceptable to the blood stream.

For the progressive physician seeking improved clinical results.

Send for reprints and list of intravenous solutions.

NEW YORK INTRAVENOUS LABORATORY

Producing Ethical Intravenous Solutions for the Medical Profession Exclusively

100 WEST 21st STREET, NEW YORK CITY

NOW ENTIRELY AMERICAN

Made by the Original Processes

Sajodin

PALATABLE and EFFICIENT IODIN MEDICATION

Especially for Prolonged Use as in

Arteriosclerosis

and when Iodides disagree

Adalin

THE SAFE and DEPENDABLE HYPNOTIC and SEDATIVE

For Treatment of the Common Forms of

Insomnia

and for Nervousness

VERONAL and VERONAL-SODIUM

The Well-Known Hypnotics

Sold Exclusively by

WINTHROP CHEMICAL COMPANY, Inc.

189-191 Franklin Street New York, N. Y.

Testing Laboratory—Standard Oil Company (New Jersey)

INSURING NUJOL QUALITY

THERE can be no variation in the high quality of Nujol. This high quality is maintained by a staff of expert petroleum chemists who test the contents of the glass-lined tanks in which Nujol is stored and must approve same before the manufacturers can start bottling.

Nujol exceeds all the pharmacopoeial requirements of the United States and other nations. The expert chemists of the Nujol Laboratories of the Standard Oil Company (New Jersey) have been able to produce absolutely pure Liquid Petrolatum of every viscosity from a water-like fluid to a jelly.

The viscosity of Nujol was determined after exhaustive research and clinical test and is in strict accord with the opinions of leading medical authorities. Sample and literature based on the writings of Sir Arbuthnot Lane and other eminent authorities will be sent gratis. Mail coupon below.

Nujol Laboratories, Standard Oil Co. (New Jersey), 44 Beaver St., Room 758, New York.
Please send me booklets marked.

( ) "A Surgical Assistant" ( ) "In Women and Children"
( ) "In General Practice" ( ) Also Sample

Name_____

Address_____

INTERSTATE RUBBER COMPANY

392-394 Newbury St., Boston, Mass.
Directly behind Harvard Club
Tel. B.B. 41—1420—5694

DIAMOND

Guaranteed Tires at Bargain Prices

Made and guaranteed by the Diamond Rubber Co. Can be adjusted at any Goodrich Branch on a 5000 mile basis.

These prices are lower than you can ever hope to buy at again. Both of us have seen tires advertised at a so-called bargain, but neither of us has ever seen Standard Make Tires at these low prices.

PRICES ON DIAMOND FABRIC TIRES

Size	List Price Plain	Our Price Plain	List Price Squeegee	Our Price Squeegee
30 x 3	$17.60	$10.56	$19.60	$11.76
30 x 3½	21.60	12.96	23.80	14.28
32 x 3½	25.90	15.54	28.75	17.25
31 x 4	30.05	18.03	33.30	19.98
32 x 4	34.50	20.70	37.70	22.62
33 x 4	36.25	21.75	39.55	23.73
34 x 4	37.00	22.20	40.60	24.36

All other sizes at proportionately low prices.

If you only could fully realize what a wonderful value these tires really are, you would buy at once and buy for future requirements.

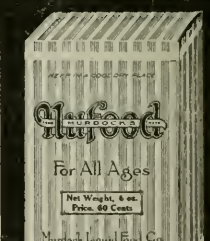
TRADE MURDOCK'S MARK Mufood

a diet of

Milk — Eggs — Malt Extract

samples on request

Try it — Doctor



GONOSAN
"RIEDEL"

To ALLEVIATE PAIN, to PROMOTE DIURESIS and to PROTECT the membrane of the urethra, especially THE POSTERIOR PORTION—these are the important objects of the treatment of acute cases of Gonorrhea.

The entire urinary tract should be influenced by means of proper internal medication. Local injections alone will not be sufficient.

This is the rationale of GONOSAN.

Samples and literature at your disposal.

RIEDEL & CO., Inc.

Bush Terminal Building 5 BROOKLYN, NEW YORK CITY

RADIUM

STANDARD CHEMICAL CO.

RADIUM of highest purity in any quantity.

Patented glazed plaques
for superficial conditions.

Tube and Needle Applicators
for deep therapy.

Apparatus for radium emanation
installed by our Department of Physics.

All our applicators and apparatus adopted after having been proven therapeutically practicable.

U. S. Bureau of Standards Certificate.

Our Departments of Physics and Medicine give instruction in the physics and therapeutic application of Radium.

RADIUM CHEMICAL CO.
PITTSBURGH, PA.

BOSTON Little Building CHICAGO Marshall Field Annex Building SAN FRANCISCO Flood Building

NEW YORK

If It Is Electrotherapeutic Apparatus We Have It
and
If It Is The Best We Have It

We carry a full line of Electric Light Bath Cabinets and Bakers, High Frequency Machines, Sinusoidal, Galvanic, and Faradic Outfits, etc.

We can give you the LATEST and BEST in X-ray equipments of any size complete with COOLIDGE accessories.

To physicians in New England who are using the Van Houten and Ten Broeck Static Machines we can give full service both for repair work and new equipment, as we have taken over the manufacture of these machines.

If you are in the market for any equipment it will pay you to write us.

Thomas B. Snow

212 East 23rd Street **New York City**

PHILLIPS' MILK OF MAGNESIA

"THE PERFECT ANTACID"

For Correcting Hyperacid Conditions—Local or Systemic—Vehicle for Salicylates, Iodides, Balsams, Etc.

Of Advantage in Neutralizing the Acid of Cow's Milk for Infant and Invalid Feeding

Phillips' Phospho-Muriate of Quinine

COMP.

NON-ALCOHOLIC TONIC AND RECONSTRUCTIVE

With Marked Beneficial Action Upon the Nervous System. To be Relied Upon Where a Deficiency of the Phosphates is Evident

NEW YORK THE CHAS. H. PHILLIPS CHEMICAL COMPANY LONDON

Canadian Agents: The Wingate Chemical Co., Ltd., 545 Notre Dame, West, Montreal.

The Management of an Infant's Diet

Malnutrition, Marasmus or Atrophy

Mellin's Food
4 level tablespoonfuls
Skimmed Milk
8 fluidounces
Water
8 fluidounces

Analysis:

Fat	.49
Protein	2.28
Carbohydrates	6.59
Salts	.58
Water	90.06
	100.00

The principal carbohydrate in Mellin's Food is maltose, which seems to be particularly well adapted in the feeding of poorly nourished infants. Marked benefit may be expected by beginning with the above formula and gradually increasing the Mellin's Food until a gain in weight is observed. Relatively large amounts of Mellin's Food may be given, as maltose is immediately available nutrition. The limit of assimilation for maltose is much higher than other sugars, and the reason for increasing this energy-giving carbohydrate is the minimum amount of fat in the diet made necessary from the well-known inability of marasmic infants to digest enough fat to satisfy their nutritive needs.

MELLIN'S FOOD COMPANY, BOSTON, MASS.

The Boston Medical and Surgical Journal

TABLE OF CONTENTS

November 4, 1920

ORIGINAL ARTICLES

INTERPRETATION OF THE WASSERMANN REACTION. *By William P. Boardman, M.D.*, Boston. 537

THE DIAGNOSIS OF PRIMARY SYPHILIS. *By Henry D. Lloyd, M.D.*, Boston. 540

LEAD IN THE URINE IN NEURO-CIRCULATORY DISTURBANCES. *By C. A. McDonald, M.D.*, Providence, R. I., and *Henry McCusker, M.D.*, Providence, R. I. 543

A REVIEW OF THE RECENT WORK ON AMOEBIC DYSENTERY. *By William Allan, M.D.*, Charlotte, N. C. 545

THE AFTER-TREATMENT OF A DISLOCATED ELBOW. *By Ernest T. Saeger, M.D.*, Boston. 548

CLINICAL DEPARTMENT

THE USE OF THE THERMOMETER IN MENTAL DISEASES. *By E. D. Bond, M.D.*, Philadelphia, Pa. 550

BOOK REVIEW

The Modern Treatment of Mental and Nervous Disorders. By Bernard Hart, M.D. 554

EDITORIAL

DIETARY EXPERIMENTS IN PRODUCING PELLAGRA. 555

MEDICAL NOTES. 556

MISCELLANY

ABSTRACT OF REPORT ON EYE INJURIES. *By Francis D. Donoghue, M.D.*, Boston. 558

NOTICES, RECENT DEATH, ETC. 560

Original Articles.

INTERPRETATION OF THE WASSERMANN REACTION.*

BY WILLIAM P. BOARDMAN, M.D., BOSTON.

IN the interpretation of the Wassermann reaction we must remember that it was only about twelve years ago that this test was introduced into this country and we do not yet know what the nature of the reaction is: whether chemical, physical, biological or a combination of these; and on this account, if for no other reason, we should not try to make it displace all previous knowledge about the diagnosis, prognosis and treatment of syphilis.

Thibierge[1] says, "It is not a definite chemical reaction like the tests for arsenic or sugar, but consists in the testing of properties of substances of unknown composition, existing in unknown and surely very variable quantities, by means of other substances of equally unknown nature, existing in the reaction in also unknown doses, mingled with a lot of substances still less known, in proportions independent of those which take part in the reaction." The only deduction to be made from this definition is that there is as yet very little known about the nature of the reaction.

Craig[2] has shown that the reaction varies considerably from day to day when the blood of the same patient is drawn daily and tested by the same set of reagents and by the same serologist.

In looking for a cause for these variations, attention has been called to the fact that there is great variation in all the reagents which are combined in the test.

The complement (guinea-pig serum) varies greatly, not only in its hemolytic properties, which are generally tested preliminary to the test, but also in its deviability in the presence of antigen and the various sera that are being tested. This deviability is something we cannot test out beforehand, though we do try to eliminate the error by using a mixture of the sera of several guinea pigs, thereby hoping to obtain a fair average.

The antigens used in various laboratories and even in the same laboratory vary enormously in their sensitiveness. Probably the most delicate one is that which we use at the Boston City Hospital and quite generally employed about Boston, namely, an alcoholic extract of beef heart or human heart reinforced with cholesterin. The more delicate the antigen, the more surely are we going to obtain

* Read at the Clinical Meeting, Boston City Hospital, Jan. 8, 1920.

false positives and this is the great objection to this antigen. On the other hand, with a less delicate one, we are surely going to miss a lot of active syphilis, especially in the treated cases. Moreover, if the results are carefully checked up with the clinical side of the cases and the dose of the antigen varied according to the results, I think that the false positives are very rare in cases where the diagnosis of syphilis is in question. But as the antigens are made from different hearts, and sometimes even when they are made from the same heart, their composition and properties vary somewhat and the results of the reaction are accordingly more or less modified. By varying the dose, too, as I have already indicated, we can produce great variations in the results with the same antigen.

In the patient's serum we have a factor that varies greatly under different conditions when fresh and still more when contaminated and kept in a warm room for several hours. Kolmer[3] has shown that a very small amount of alkali and a till more minute amount of acid, either of which might come from improper cleansing of the glassware used to contain the serum or in the test, may cause a positive result or make the blood anticomplementary. A slightly larger amount of either alkali or acid may cause hemolysis of the red corpuscles and give a false negative result.

The sheep's corpuscles used in the test vary greatly in their fragility, but this is always taken into account in the preliminary titration. On the other hand, if care is not taken to have the suspension of uniform strength each time, some variation is sure to come from reading the results especially in the weaker reactions.

In regard to false positive reactions, they have been found in about every conceivable disease, but we must remember that syphilis is a protean disease and that it often gives no signs or symptoms for years at a time, so that we are likely to find positive reactions in all sorts of conditions due to a latent syphilis which, though present, has nothing to do with the present condition of the patient. Among the conditions where false positives have been repeatedly reported, I shall mention only those which are common hereabouts. Infected blood, especially with staphylococcus aureus or albus, may give a false positive as Craig[4] has shown, though the more common finding in these contaminated specimens is an anticomplementary result. Ether narcosis has long been known to give a positive reaction for a few days, mostly, however, only a weakly positive. Icterus has frequently given positive results with some investigators, though I have never seen it except in syphilis, even though I did a fairly large series of icterus cases at one time. Malaria has frequently given positive reactions, but the fact here seems to be that it is only positive for a day or so around the time when the patient is having the chills. Whether measles or scarlatina give a positive reaction is a much mooted point, but the latest information is an article by Laederich[5], who finds positive reactions in both diseases on the fourth or fifth day (without relation to the severity of the symptoms in the particular cases), which appear always by the fifteenth day. With the cholesterin antigens these reactions were strongly positive, while with plain alcoholic extract only weak ones were found. In tuberculosis cases, Craig,[6] in a large series, finds no false positives, whereas Müller,[7] though he finds none in the earlier cases, finds about five per cent. in those with late complications, such as laryngeal involvement. It is interesting to note in Craig's figures, however, that there are more positives in the tubercular patients than in the colored regiments of the army, a fact explained by him as due to the very frequent concomitance of syphilis and tuberculosis. In malignant diseases we do not get false positives except late in the disease, when it does occasionally occur. I have seen it three times in cases where I feel sure there was no syphilis present to account for it and all were very near to the fatal termination of the disease. Septicemia has been found to give positive reactions in rare cases. The same is true of leukemia, especially of the splenic type. Weil[8] has lately found positive reactions in seven out of nine cases of splenomegaly, in which the patients were made worse rather than improved under antisphilitic treatment. False positives have occasionally been reported in pneumonia, especially around the time of the crisis.

So much has been said of false positive reactions that we are liable to forget the fact that there is such a thing as a false negative. These are uncommon, but I have seen them occur in rare cases where the blood is old. It is

also very commonly due to the ingestion of only moderate amounts of alcohol during a day or two previous to the taking of the blood. False negatives are not infrequently seen in pregnant women about term or during the puerperium, being positive before and after this time and active syphilis being present at the time.

In syphilis itself, as is well known, the percentage of positives varies greatly with the stage of the disease, being rarely positive before the sixth week after infection or the third week after the appearance of the chancre. The percentage of positives increases from that time until the secondary stage is reached, when it is nearly always positive. However, it is well to bear in mind that some cases do not show a positive until the rash has been present for some time, and in rare cases not at all, so that even here we cannot depend on the Wassermann test absolutely to make the diagnosis for us. I have seen two or three such cases, one of which I followed for some time and he never showed a positive reaction even though he had very definite and active secondaries and later a tertiary throat which reacted only to very intensive treatment. In this connection I might mention that several authors have found weak or negative results in malignant syphilis. In tertiary syphilis the percentage of positive reactions varies around eighty per cent. Here again we must depend on the clinical signs in about twenty per cent. of the cases. In latent cases the percentage varies greatly according to whether the case has had treatment recently or not and according to how old the process is. In congenital cases a positive reaction is often delayed until the outbreak of symptoms, when is is almost invariably positive. In adult congenital cases, however, with active syphilitic lesions, the reaction is positive only in about 75 or 85 per cent., according to Craig. Here again we have to depend on the clinical signs and the more or less well known stigmata of congenital syphilis in a fairly large proportion of cases. In internal syphilis of the heart, aorta, liver, and testicles, the reaction is said to be nearly 100 per cent. positive in the active cases, but I fear that the reason for this high percentage is more correctly due to the fact that the clinician depends on the Wassermann for his diagnosis and calls only those syphilitic which show a positive test. However, in regard to the liver and testicles, I have not seen a case which was proven by antisyphilitic treatment or by autopsy to be syphilis which did not give a positive reaction and always a strong one. In nervous syphilis the reaction on the blood is positive only in about 65 or 70 per cent. of the tabes, more often in meningeal or arterial forms and nearly 100 per cent. in general paresis, though in all these we can obtain more information by examining the spinal fluid in addition.

Now as regards the interpretation of the reaction as a guide to treatment. Most all authorities claim that a negative reaction in the course of treatment in a primary case, where treatment is instituted before the reaction became positive and where it has persistently been negative throughout, is a good sign taken in connection with the absence of clinical symptoms other than the original chancre and is a legitimate argument for shortening the course of treatment somewhat in such a case.

In secondary cases under treatment, we all like to see the reaction become negative as soon as possible, the same as we like to see the clinical manifestations disappear and in the same way we feel that when both respond quickly to treatment, the latter is intensive enough for the time being and if necessary for the general condition of the patient, we can go a little easier on the treatment for the time. If it does not return to positive during the next two or three years, the patient in the meantime shows no recurrent symptoms, possibly we can shorten the treatment of the case a little, especially if the spinal fluid and possibly the luetin reaction show nothing to suggest further activity of the disease. But further than this a negative reaction in the course of a case of secondary syphilis under treatment means practically nothing.

In tertiary cases the reaction varies much less than in the secondary and is usually much harder to turn to a negative, though when it does turn, it generally stays there if the treatment is not interrupted too soon, so that most authors feel that in these cases the Wassermann test is a better guide to treatment than in the secondary, though here again the test has been in existence too short a time to allow us to change our treatment too much on account of it. Then again, in spinal syphilis,

the reaction is frequently changed to negative long before the spinal fluid has changed or the symptoms have been cleared up, so that here it is not of much use as a guide to further treatment. In still other cases of tertiary syphilis, especially those of long standing, it is practically impossible to change the reaction to negative. This seems to be especially true in general paresis and in arterial syphilis. Here it would be a great mistake to continue with salvarsan and mercury and cause an incurable irritation of the kidneys or some other permanent damage when we do not know that this positive reaction means active syphilis. Wile[9] has made the suggestion that in some of these cases, the positive reaction corresponds to a positive tuberculin test in old, arrested tuberculosis.

In regard to treatment of cases that show nothing but a positive Wassermann reaction, with no history of syphilis, I feel very strongly that if this reaction is present and strongly positive on several different occasions, and the patient shows no other condition which might cause a positive reaction, the patient should be treated for syphilis and intensively treated. It has been definitely shown that between 30 and 50 per cent. of the cases of late clinical syphilis give no sign or history of previous infection and the medical examiners tell us that syphilis is one of the very frequent causes of sudden death, often where syphilis was never suspected by the patient during life. Now, as these cases have received no previous treatment, it is only logical to suppose that the Wassermann reaction would have been positive in a large proportion of them for some time previous to the appearance of symptoms and by timely treatment during this apparently latent stage and in no other way can this sort of accident be avoided.

A few words might be said in regard to the reading and reporting of the Wassermann reaction. In the army, a one plus is a weak reaction and a two plus is a strongly positive one. In other places we find the one, two, three and four plus signs used. In the Boston City Hospital we use three plus signs for the strongest reaction. All these signs mean merely the degree of hemolysis and the more grades used, the more accurately can the results be compared. I feel that in a treated case the very weakest reaction is an indication for more treatment, whereas for diagnosis, outside of nervous syphilis, a one plus, as we use it, means nothing for the diagnosis of syphilis. A two plus should only be considered as a sign of syphilis when found in connection with pretty strong clinical signs. On the contrary, I feel that a strongly positive reaction (three plus as used at the Boston City Hospital) means syphilis, whether clinical signs are present or not, if it is repeatedly present and there is nothing else in the case which might give a positive, such as advanced tuberculosis or malignant disease in a late stage.

In conclusion, let me remind you that the Wassermann reaction is still in its infancy and its nature is entirely unknown, but it is to be used as an important clinical sign of syphilis and I think that you will find no more variations in it than you will in the findings of several men in the examination of a chest by auscultation and percussion.

REFERENCES.

[1] Thibierge: Presse Médicale, Vol. xxvi, p. 609.
[2] Craig, Charles F.: The Wassermann Test, 1918.
[3] Brown and Kolmer: Am. Jour. of Syph., Vol. iii, p. 8.
[4] Craig: *Loc. cit.*
[5] Laederlich and Bory: Bull. et. Mem. de la Soc. Méd. des Hôp. de Paris, 1919, 3s., Vol. lxiii, p. 504.
[6] Craig: *Loc. cit.*
[7] Müller, Rudolph: Die Serodiagnose der Syphilis, 1915.
[8] Weil: Paris Méd., Vol. ix, p. 237.
[9] Wile and Hasley: Jour. A. M. A., Vol. lxxii, p. 1526.

THE DIAGNOSIS OF PRIMARY SYPHILIS.

BY HENRY D. LLOYD, M.D., BOSTON.

AFTER infection by the treponema pallidum, the incubation period before the chancre appears varies between three and six weeks, with an average of three and one-half to four. Some men place the outside limits of time as between ten and seventy days. Experimentally the average in apes is twenty-five days. In trying to learn the length of this incubation period it is worth while to remember that while the last sexual exposure may have been only one week before the patient is seen, there may have been an earlier one antedating the nearer exposure by just enough time to make the proper interval.

In regard to the clinical examination of the suspected lesion or lesions, Taylor[1] states there are six varieties of chancre seen clinically: the chancrous erosion, the silvery spot, the dry papule, the umbilicated papule, the purple necrotic nodule and the ecthymatous chancre. As a matter of fact, the primary lesion of syphilis

begins as a papule and all the above-noted forms are simply modifications of the papule. The erosion and ulceration which are noted in chancres are due to trauma or infection other than treponemae, or both. The primary papule is quickly eroded; it is usually either round or oval in shape; it is not truly granular but smooth like muscle and closely resembles muscle in color. It may or may not be much indurated; the eroded surface is frequently above, not below, the surface of the normal surrounding tissue, and it has a tendency usually marked to weep serum. It is not tender as a rule. It may be single or multiple although the former is more common. The more usual locations for the penile primary lesion are at or near the frenum or in the balano-preputial furrow. In the latter situation the induration is apt to be most marked and as the prepuce is rolled back the induration can be plainly seen. Also in this situation phimosis is common. In a series of 75 primary lesions in this location observed by Klauder,[2] phimosis was present in 61.3%. In his whole series of 121 chancres, phimosis was present in 13.2%. The same observer states it to be his conviction that a very large majority of all penile lesions occurring on the shaft are luetic.

The surface of the primary lesion may be clean or covered with a gray ecthymatous or cream green membrane. The amount of induration present is variable. Those lesions situated either on the inner or outer surface of the foreskin are the more apt to be indurated, while those occurring on the glans or shaft are less likely to be.

In the female the genital primary lesion has the following distribution according to Fournier[3] in a series of 249 cases.

Greater lips	114
Lesser lips	55
Fourchette	38
Cervix	13
Introitus vaginae	9
Urinary meatus	17
Superior vulvar commissure	2
Vagina	1

The primary lesion as observed on the female genitalia except those on the greater lips is less apt to show marked induration, and is rather more apt to present a surface covered with a dirty exudate than the chancre in the male.

The glands resulting from syphilitic infection are usually very characteristic. They may be small or large, are discreet, not attached to the skin, and not tender. They begin to enlarge usually within a week or ten days, although the period may be as long as three weeks. Frequently the dorsal lymphatic of the penis becomes enlarged, hard and occasionally a hard nodule may develop along its course near the root of the penis.

Clinically it is important to remember that either an ordinary pyogenic infection or one by the Bacillus of Ducrey may disguise the result of treponemal infection; also that the primary may vary in size from a scratch or minute erosion to the size of a walnut. We have observed examples of each.

We now come to a consideration of the newer methods of diagnosis, the examination of the secretion from a suspected lesion by means of the darkfield microscope, and the Wassermann reaction. The difficulty of recovery of the treponema pallidum from any luetic lesion is vastly increased by the use of the applications commonly in use. The commonest of these are silver nitrate and some form of mercury. Therefore no suspected penile lesion (and all lesions should be suspected) should have any application other than normal saline or boric acid in some form until the diagnosis has been made for or against lues. If any application has been made other than some neutral substance it will probably be necessary to wait 24 to 48 hours before it will be possible to recover the pallidum, assuming it is present. Klauder[2] in the series previously quoted obtained a positive darkfield examination in 57.1%.

Some little time ago C. Morton Smith[4] analyzed a series of primary syphilis seen in the South Medical Clinic of the Massachusetts General Hospital, and found that in roughly 96% the darkfield had been positive. The latter figure is, I believe, more nearly what should result from the use of the darkfield microscope. The younger the chancre and the less treatment it has endured, the better the chance of recovering the pallidum, assuming the skill of the examiner is uniform.

What actually are the necessary details of a proper darkfield examination? First, let me say again that one of the most important, if not the most important factor, is an untreated or neutrally treated lesion. The suspected lesion is gently but thoroughly cleansed with ethyl alcohol. The reason for the use of the

alcohol lies in its dilatation of the superficial vessels, thus producing a greater flow of serum. The cleaning of the lesion should be thorough enough to remove any contaminating pus cells, but gentle enough so that the microscopic picture will not be obscured by red blood cells. The cleansing accomplished, sufficient gentle pressure is put upon the suspected lesion to produce a flow of serum. If the treponema pallidum is present in this serum, what do we see, looking into the darkfield microscope? Noguchi's[5] description is classic: "Treponema has a slender cylindrical, spirally wound, highly flexible body, which exhibits serpentine, corkscrew-like and sometimes lashing movements. The spiral curves are partly stretched and drawn together with a certain rhythm, so that an actively motile organism resembles a spiral spring which is alternately drawn out and relaxed." The same authority gives the measurements as follows: length, 6-14 microns; width, .2-.25 microns.

As a matter of practical medicine, I believe that in examining genital lesions there is very little chance of confusing the treponema pallidum with the other non-pathogenic spironema normally resident in the genitalia, such as the spironema refringens and the spironema balanitidis. The measurements of these two organisms are respectively 8-12μ x.33μ and 8μ-12μ x.5μ-.75μ, these being shorter and thicker than the pallidum. The treponema pertenuis cannot be distinguished morphologically from the pallidum. Occurring as this does in yaws only, a differential diagnosis should be possible on clinical grounds. In the examination of mouth or throat lesions we need to exercise more care as the treponema microdentium closely resembles the pallidum. Its measurements are 3μ-12μ x.2μ-.25μ (Noguchi[5]). It will, however, be seen that the treponema microdentium is somewhat shorter than the pallidum and it presents fewer curves. The other organisms likely to be encountered in the mouth and throat, such as the spironema buccalis, spironema Vincenti and spironema refringens are all notably longer and thicker than the treponema pallidum. The curves of these three organisms are coarser and they are much more actively motile.

One more practical point. Even though there be a phimosis present, it is usually possible by careful manipulation to secure material for examination by the darkfield, and in a surprisingly large number of these cases the results will be positive. In regard to the Wassermann reaction, I shall consider it only from the clinical side. That is to say, at what time of the primary period does the Wassermann become positive?

Klauder[2] found the following results:

Duration of Chancre in Days	Number of Cases	Positive	Negative	Per Cent. Positive Results
1–10	33	12	21	36%
10–20	17	11	6	64.7%
20–30	20	14	6	70%
30–40	5	5	0	100%
40+	40	40	0	100%

Craig[6] in a series of 600 cases of primary syphilis obtained the following results:

Week after Appearance of Chancre	Total Cases	Positive	Per Cent.	Negative	Per Cent.
1st week	77	27	36.3	50	64.9
2nd week	155	92	59.3	63	40.3
3rd week	158	109	68.9	49	31.0
4th week	167	129	77.2	38	22.7
5th week	43	35	81.3	8	18.6

Craig also speaks of two cases in which the Wassermann test was positive five days after the appearance of the initial lesion. Most observers agree that in the secondary period the Wassermann test properly performed is nearly 100% positive.

The extra-genital chancre deserves a few words. Bulkley[7] in 1894 published a series of 9058 cases collected from the literature. Of these 20% were situated on the lips, 12.5% on the breasts, 5% on the hands. In Bulkley's private practice he noted a series of 113 cases. Fifty of these were on the lips, 15 were on the tonsils and 15 on the fingers, 7 were on the breasts, 6 were on the tongue and the remaining 20 were variously distributed.

H. N. Cole,[8] of Cleveland, in reporting a series of 61 extragenital chancres, states that 43 cases occurred on the lips, 3 on the tonsil, 1 on the tongue, 10 on the hands, 1 on the neck behind the ear, 1 on the left jaw, 1 on the abdomen, and 1 on the breast, a double infection of the nipples. Cole says, "Given any single sore on the body which tends to persist, to increase in size and induration, and to involve nearby lymph glands, one should always keep the chancre in mind."

The differential diagnosis of the extragenital lesion may involve many conditions, but the ones chiefly to be kept in mind are late luetic lesions and carcinoma.

CHANCRE	CHANCROID	HERPES PROGENITALIS	SCABIES	CARCINOMA	LATE LUETIC LESION
Incubation 3 to 6 weeks	2 to 5 days	Short	Probably several weeks	No known incubation but slow developing	No incubation period
May be single or multiple, more commonly single	More commonly multiple	Usually multiple	Usually multiple	Single process	Single usually
Subjective symptoms slight or absent	Considerable pain and tenderness	Usually itching and burning	Itching	Pain	Essentially destructive in its nature
Lesion not excavated and surrounded by normal tissue. Surface of lesion smooth raw muscle color. Often indurated	Lesion excavated, edges of ulcer undermined, surface of lesion dirty	Begins as vesicle on inflamed base	Vesicular, papular or pustular. Burrow may be seen, lesions found in other localities	Ulcerated slightly elevated pearly border. May be crusted	Surface is granular and more apt to be infected.
Glands are hard, discrete not tender, not attached to skin	Glands hard and tender, matted together, frequently break down	No glands	No glands	Glands develop very slowly.	Glands not involved
Only auto-inoculable in first 10 to 12 days	Always auto-inoculable	Not auto-inoculable	Is spread by auto-inoculation	Not auto-inoculable	Not auto-inoculable
Treponema pallidum	Bacillus of Ducrey present	Usually no organisms	Acarus scabiei present	No organisms	Wassermann positive in 70% to 80%
Occurs at any age	Occurs at any age	Usually during the years 20 to 40	Usually during the years 20 to 40	Occurs late in life	Possible previous history of syphilis

The differential diagnosis in a genital lesion lies between the following conditions: chancre, chancroid, herpes progenitalis, scabies, carcinoma and late luetic lesions. The following table shows the difference:

CONCLUSIONS.

One of the most important factors, if not the most important, in the successful diagnosis of primary syphilis is a lesion which has not been treated either with silver nitrate or some form of mercury.

In a series of 97 consecutive cases a positi diagnosis was made in 96% by means of the darkfield microscope. In a number of these cases, however, repeated examinations were necessary.

The positivity of the Wassermann test, which at the end of ten days averages about 30-35%, increases to practically 100% at the end of the fifth week after the appearance of the chancre.

By employing careful clinical observation and both laboratory methods of examination, repeatedly if necessary, but few cases of primary syphilis should go unrecognized.

REFERENCES.

[1] Taylor, Robert W.: Genito-Urinary and Venereal Diseases, Lea Bros. & Co., 1900, p. 473.
[2] Klauder, Joseph V.: The Early Diagnosis of Syphilis, Jour. A. M. A., 1919, No. 10, p. 693.
[3] Fournier, A. (Quoted by Hazen, Henry H.,): Syphilis, C. V. Mosby Co., 1919, p. 72.
[4] Smith, C. Morton: The Treatment of Syphilis, BOSTON MEDICAL AND SURGICAL JOURNAL, 1916, No. 6, p. 198.
[5] Noguchi, Hideyo: Spirochetes, Am. Jour. Syph., 1917, No. 2, p. 261.
[6] Craig, Charles F.: The Wassermann Test, C. V. Mosby Co., 1918, p. 135.
[7] Bulkely, L. D.: Morrow's System of Genito-Urinary Diseases, Syphilology and Dermatology, New York, 1893, No. 2, p. 61.
[8] Cole, H. N.: Report of a Series of Sixty-One Extragenital Chancres, Jour. A. M. A., 1916, No. 25, p. 1805.

LEAD IN THE URINE IN NEURO-CIRCULATORY DISTURBANCES.*

BY C. A. MCDONALD, M.D., AND HENRY MCCUSKER, M.D., PROVIDENCE, R. I.

OF late, lead poisoning has been a favorite subject with industrial hygiene investigators and already much work has been done on acute and subacute plumbism in lead workers. Recently some work has been started on chronic lead poisoning, and very recently, experiments have been begun to determine the intake and output of ingested lead. In the cases of acute and subacute lead poisoning reported, and in those found in hospital records, there has been shown a trace of lead in the urine.

* Read at the Neurological Staff meeting, Massachusetts General Hospital, March, 1920.

Some observers also test for lead in the stools, but stool lead shows ingestion and does not show absorption. The urine examination for lead is more satisfactory because it shows the amount of absorption.

Dr. Chapman of Providence was one of the first to show the amount of lead necessary to cause symptoms and signs. He asserted that from one quarter to one half a milligramme (.00025 to .0005) of lead per liter of urine (estimated by standard methods) is sufficient to cause chronic plumbism, and quoted a number of cases which, he alleged, were due to this amount of lead or more. Accepting his standard as the minimum amount of lead to cause symptoms and signs, we are reporting the following cases:

CASE 1. No. 6481, Butler Hospital Record. male; aged 24; born and raised in Woonsocket, R. I. He served with the A. E. F. in France. While in the service he became paralyzed on the right side and became aphasic. He was admitted to Butler Hospital on August 29, 1919. Before the war he lived in Woonsocket and used the city water. He had had several occupations in a mill and had worked about three months in a paint shop as a paint scraper. When examined he was found to have a right hemiplegia with aphasia. In this case there was no evidence serologically of neurosyphilis. Signs and symptoms of brain tumor, cardiac disease, renal disease with hypertension (blood pressure 126-96), arteriosclerosis, or of endocrine disease, were absent. There was nothing in the history of the findings which suggested an infectious cause or a blood condition which might cause a cerebral hemorrhage. The work in the paint shop suggested lead. After a short course of KI the urine examination showed 0.0016 of lead per liter of urine. Examination of home tap water showed 0.0035 lead per liter.

CASE 2. No. 2985; male; aged 49; carriage painter by trade. One year ago, after a tooth extraction, he showed a right hemiplegia without aphasia. After this he suffered a depression or so-called "nervous breakdown." Examination showed his teeth in poor condition. Blood and spinal fluid Wassermann were negative. Blood pressure was 130-90. Fundi were negative. Urine examination showed no albumen and no sugar. Gravity adjustable. It also showed 0.004 lead per liter of urine.

CASE 3. No. 2992; male; aged 50; carriage painter. Six years ago he was taken sick on the street with vertigo and sub-sternal distress. Since that time he has had many like spells. At the present time he has a phobia for crowded places, street cars, etc. On examination the fundi were negative. Cranial nerves were negative. Teeth were in poor condition. Heart was enlarged. Arch dulness was increased. Blood pressure was 190-90. In the right third interspace there was a diastolic murmur. Brachials were visible, tortuous, and sclerosed. Blood Wassermann negative. Urine examination: Albumen showed as a slightest possible trace. Specific gravity 1010, not fixed. No casts and no sugar. Lead, after KI treatment, showed 0.001 per liter of urine.

CASE 4. No. 2762; male; aged 50; no occupation for two years. Complaint—Multiple pains and aches of face and body. Neurological and systemic examinations were negative. Blood Wassermann negative. Teeth showed much pyorrhea. No evidence of focal infection. Urine negative for sugar and albumen. It showed 0.0019 of lead per liter. Much relief came after the removal of the teeth and the substituting of spring water for tap water and the administration of KI by mouth.

CASE 5. No. 2543; male; aged 40; storekeeper. Complaint—Epileptic spells at 36. Examination showed him to have a normal personality. Urine was negative for sugar and albumen. Red renal test normal. Blood Wassermann and spinal fluid negative. Spinal fluid showed 18 cells and an increase of globulin. There is no evidence of arteriosclerosis. X-rays of sella turcica showed an elongation of the anterior and posterior clinoid processes and a definite shadow within the sella, thought to be a condensation of the pituitary gland. Urine showed 0.0082 lead per liter. Spring water was substituted for tap water for drinking and cooking, and KI was given by mouth. Much improvement has been noted in general condition and in the number of seizures.

CASE 6. No. 2765; male; aged 40; lawyer. Complaint—A migraine of a migraine family. Within the past year he has had two fainting spells. Excellent personality. General examination, neurological and systemic, showed no abnormalities excepting an eye difficulty for which he wore glasses. Examination of urine showed 0.0018 lead per liter. House tap water showed 0.566 p.m.p. His glasses were refitted, tap water was no longer ingested and KI was administered. There have been no headaches and no fainting spells in four months, which is unusual.

CASE 7. No. 2532; male; aged 44; master plumber. Complaint—Malaise, headache, indigestion, and vascular hypertension. Blood pressure 200-100. Blood Wassermann negative. Urine negative for sugar and albumen. Red renal test, 65%. Urine showed 0.0019 of lead per liter. While under observation he had an intestinal hemorrhage, probably from duodenal ulcer.

CASE 8. No. 2564; female; aged 42; housewife. Patient was first seen on January 17, 1920. Complaint—She complained of palpitation

and headache and said that she had been told that she had high blood pressure. Examination showed that she had no organic nervous disease. Blood Wassermann was negative. In the urine there was no albumen and no sugar. The specific gravity was variable. The red renal functional kidney test was 60%. Blood pressure was 180-95. There were no signs of anemia. The urine showed 0.014 of lead per liter. The tap water of her house showed 0.45 p.m.p. Spring water was ordered and tap water denied either for cooking or drinking. Small doses of KI were administered. Three months later palpitation had gone; the blood pressure was 150-90. The lead in the urine was reduced by two-thirds. This woman was impressionable but claimed to be benefited.

Case 9. No. 701; male; aged 60; inventor. Complaints—Loss of color, constipation, general weakness, and left hemiplegia. He showed signs of hemiplegia of mild degree without speech disturbance. His general weakness upset him more than his hemiplegia. Urine analysis showed no albumen and no sugar. Specific gravity 1015. Red renal test was 50%. Blood Wassermann was negative. Blood smear was negative for malaria and signs of anemia. There was no blood in his stools and no ova. He was a man who had had many business cares, had not used alcohol and had used but little tobacco. In a liter of his urine there was found 0.0032 of lead. The tap water in his home showed 0.43 p.m.p. and that of his place of business 0.63 p.m.p.

Case 10. No. 2759; male; aged 54; machinist. Complaint—For one year he has suffered from pain and coldness of his feet. In the winter he has suffered sufficiently to interfere with his vocation. He stands and sits at his work. He lives in the city in a very old house and while at work drinks water from an artesian well. There was no syphilis in his history. He admitted the abuse of alcohol up to a few years ago. He had used much tobacco over a period of many years. There were no signs of organic nervous disease and no signs of cardio-renal disease (blood pressure 140-90). The retinal vessels were sclerosed, the radials were moderately sclerosed, the arch did not percuss enlarged. There was pulsation in his posterior tibials but no pulsation in his right or left dorsalis pedis. His teeth had been extracted. His prostate was not enlarged. On both feet, his first and second toes were pale and cold. The home tap water showed 0.5 of lead p.m.p. Examination of his urine showed 0.012 of lead per liter. By stopping the ingestion of his house water, and by the use of KI, electricity, and massage, he showed improvement.

Case 11. No. 2641; female; aged 47; housewife. Complaints—Acroparaesthesias of her hands and a great feeling of fatigue; cramp-like feeling of the muscles; constipation. Examination showed a woman with active deeper reflexes with no evidences of cardiovascular-renal disease. She had some thickening around her small joints—a mild arthritis, perhaps. Blood Wassermann was ++. A spinal fluid examination was refused. A second blood Wassermann was negative. Her teeth were in poor condition. She was looked upon as a case of arthritis and ataxic paraplegia without any evidence as to the cause. The urine showed 0.0026 of lead per liter. The routine treatment previously described was instituted but she was lost sight of.

Case 12. No. 2480½; male; aged 40; printer. Complaint—Paralysis of his arms and wrists, slow in onset. Examination showed patient to have a progressive muscular atrophy involving most of the muscles supplied by the brachial plexus on both sides. The knee jerks were active. There were no Babinski and no ankle clonus. There was some loss of muscular substance of the right gluteal group. There was a slight bladder disturbance. Of the cranial nerves there were no pathological signs excepting a right Horner's syndrome. Competent neurologists looked upon this case as one of progressive muscular atrophy coming on in a printer. Much later a urinary analysis showed 0.026 of lead per liter. Routine examination, however, showed a positive blood Wassermann, and the spinal fluid findings were those of neurosyphilis.

SUMMARY.

These twelve cases represent nervous disorders of many types. Not one of them showed signs of lead poisoning, like the lead-line, anaemia, or stippling. It was only by making a routine urinary examination for lead in doubtful cases that the lead element was discovered. These cases are reported, therefore, to stimulate corroboration or refutation of Chapman's standard, that four-tenths of a milligramme of lead per liter of urine is sufficient to cause symptoms; and secondly, to argue for the consideration of lead as the etiological factor, or one of the etiolgical factors, in obscure cases presenting neurological signs and symptoms.

A REVIEW OF THE RECENT WORK ON AMOEBIC DYSENTERY.

By William Allan, M.D., Charlotte, N. C.

During the period of the war considerable advance has been made in our knowledge of several of the factors of the amoebic infection

problem, particularly by our British allies. In their campaigns in the Eastern Mediterranean area they were promptly confronted with serious casualty rates from dysentery, and as the Gallipoli dysentery was reported as largely amoebic by early observers, they met this situation by intensively training a number of protozoölogists and concentrating their chronic dysenteries in special hospitals.

This war work has increased materially the definite statistical data of the incidence of amoebic infections among different races and in different parts of the world. In examining about 31,000 British troops returned from the Near East, the majority of whom had had dysentery or other bowel disorders, 9.8% were found infected with Entamoeba histolytica.[1] Of nearly 7,000 troops and civilians without any history of bowel trouble, examined in the Eastern Mediterranean area, or invalided from that region, 10.5% were found infected. In 5,000 persons with a record of intestinal disorders examined in France and England, mostly troops from the Western Front, 8.9% were found infected, while in 3,761 individuals without bowel troubles, 5.8% were infected. Kofoid found 10.8% of 1,200 American soldiers returning from France infected. The great majority of these individuals received a single examination, which Dobell has shown brings to light less than one-half of histolytica infections, so that the figures given above are something less than half the true incidence of this protozoal infection. Such a brief summary may give some idea of the magnitude of the problem; of the approximately 50,000 persons examined, both in Western Europe and the Near East, both healthy and dysenteric, between 13% and 25% were infected with Entamoeba histolytica.

Medical men have been handicapped by a lack of zoölogical knowledge of the intestinal amoebae, but have had to go blunderingly ahead because of the slowness of trained protozoölogists to lead the way out of this wilderness. Schaudinn in 1903 adopted the placing of the intestinal amoebae in a new genus, Entamoebae, by Cassigrandi and Barbagallo, and emphasized anew the distinction between pathogenic and non-pathogenic species. During the next ten years many new species were described by many observers, the Entamoeba tetragena of Viereck being the most important. Walker's[2] work in Manila in 1911 finally led to the abandonment of Schaudinn's erroneus description of Entamoeba histolytica and to the boiling down of the Entamoebae of man into two species, Entamoeba histolytica, pathogenic, and Entamoeba coli, non-pathogenic. As the former has four nucleated cysts and the latter eight nucleated cysts, all seemed plain sailing for the easy differentiating of species. But in 1917 Wenyon and O'Connor[3] described a non-pathogenic Entamoeba of man, with four nucleated cysts, calling it Entamoeba nana. Their work has been accepted, confirmed and extended by other British workers, and by our own protozoölogist, Kofoid, who has shown[4] that this new species is fairly common. Dobell[5] in his recent excellent monograph on the zoological status of the amoebae living in man has created a new genus for this amoeba, Endolimax, calling the organism Endolimax nana. So that we now have to deal with and differentiate three species of parasitic amoeba, namely, Entamoeba histolytica, pathogenic, with four nucleated cysts, Entamoeba coli, non-pathogenic, with eight-nucleated cysts, and Endolimax nana, non-pathogenic with four nucleated cysts.

The earlier work on differentiating the intestinal amoebae consisted largely in staining active forms and then interpreting the amount and arrangement of the nuclear chromatin. Needless to say this could never become a popular method. Due to the work of Walker in 1911[2] and of Mathis in 1913[6] and of many others, we have been led to turn from the study of trophozoites to the study of cysts. This has been rendered very much easier by the introduction of iodine, or such iodine stains as Donaldson's,[7] with which the specimen of stool is rubbed up in order to differentiate the cysts. Iodine makes cysts much more readily recognizable and brings out the nuclei sharply.

Dysenteries unsuccessfully treated become convalescent carriers, discharging cysts in their stools intermittently for an indefinite length of time. Besides these, there are many so-called healthy carriers, who present neither past history nor clinical evidence of dysentery. When possible, these cyst carriers should be given the same course of treatment that acute or chronic cases of dysentery receive, for besides being a source of infection to others, some will eventually develop dysentery, and some liver abscess.

Since Rogers' introduction of the use of emetine in 1912, one advance in the treatment of this infection has been made, namely, the introduction of emetine bismuthous iodide. This preparation was first suggested by Dumez,[8] in Manila in 1915. A year later the British began using it and seem to have demonstrated its value. Emetine bismuthous iodide, containing about 29% emetine, is given by mouth in salol or keratin coated tablets, one grain two or three times a day. It may be used alone or combined with emetine injections; at present there is a tendency to use emetine injections for 10 to 12 days followed by two or three grains of the double iodide for 12 days in acute cases, and to give 12 to 14-day courses of the iodide alone in treating carriers. Lillie and Shepheard[9] cleared up 62 out of 104 carriers with 12-day courses of three grains of emetine bismuth iodide alone. Jepps and Meakins[10] cleared up 20 out of 24 carriers, and McKinnon cleared up 70 out of 131 carriers. Savage and Young cured 14 out of 17 carriers and eight out of 16 acute cases with the iodide alone, two to three grains for 12 days. Gunn and Savage,[11] using emetine injections for 12 days, followed by emetine bismuthous iodid for 14 days, treated 120 acute cases; 82 were discharged as cured, 46 being kept under observation for more than 30 days, 36 for less than 30 days; 38 of their acute cases relapsed. They treated 190 carriers in the same way; 171 were discharged as cured, 106 after more than 30 days, 65 after less than 30 days; 29 of their carriers relapsed. Turner and Taylor[12] in 366 carriers had 67 to clear up without treatment; 215 were cleared of cysts with emetine bismuthous iodid, and 84 failed to clear up.

These results from British military hospitals seem very encouraging, but their men could be held for observation for only four or five weeks. In spite of Dobell's findings that 90% of relapses in treated carriers take place within three weeks,[13] McAdam has shown that many so-called carriers relapse later on, and Walker long ago found the incubation period of experimental Entamoebic infection running as high as 90 days. In civil life, it would be better to follow cases for a year before pronouncing a cure. In the few acute cases the writer has had the opportunity of treating during the past year, emetine bismuthous iodid has cleared out the cysts, temporarily at least, after emetine injections had transformed the dysenteric into the carrier state. This new therapeutic agent will doubtless prove very useful, but an estimate of its exact value must await a much more prolonged observation of its effects.

The most important addition to our knowledge of the treatment of amoebic dysentery has been presented by Dale and Dobell,[14] who undertook to work out carefully the strength of emetine solutions which would be lethal to Entamoebae in dysenteric stools. They found that when emetine in solution was applied directly to the Entamoebae, it was not particularly toxic, while it is a well known fact that emetine injections in human amoebic dysentery have a specific amoebacidal effect even in very small doses. They also found that injections of emetine had absolutely no effect on clinical amoebic dysentery in the cat. Therefore, as emetine seems to be without effect both directly and through the medium of the cat, but is very effective through the medium of man, it is pointed out that the specific action in clinical human entamoebic dysentery must be because of its action on the host and not on the parasite.

REFERENCES.

[1] The figures in this paragraph were obtained by tabulating the reports of Archibald, R. G., Hadfield, G., Logan, W., and Campbell, W.: Jour. R. A. M. C., Vol. xxvi, No. 6, p. 695, 1916; Arkwright, J. A., York, W., Priestly, O. H., and Gilmore, W.: Brit Med. Jour., p. 653, May 13, 1916; Aubert, P.: Bull. Soc. Path. Exotique, Vol. x, No. 7, p. 611, 1917; Barratt, J. O. W.: Brit. Med. Jour., p. 617, Nov. 4, 1916; Bayliss, A. A.: Lancet, p. 54, Jan. 11, 1919; Bayma, T.: Ann. Paulist. Med. et Cirurg., Vol. vii, No. 5, p. 97, 1916; Boney, T. K., Crossman, L. G., and Benlanger, C. L.: Jour. R. A. M. C., Vol. xxx, No. 4, p. 409, 1918; Christie, W. L.: Brit. Med. Jour., p. 89, July 17, 1915; Cowan, J. M., and Miller, H.: Jour. R. A. M. C., Vol. xxi, Nos. 3 and 4, 1918; Cragg, F. W., Ind. Jour. Med. Research, Vol. v, No. 2, p. 301, 1917; Cutler, D. W., and Williamson, R.: Jour. R. A. M. C., Vol. xxxiii, No. 3, p. 262, 1919; Dobell, C.: Special Report Series No. 4, Med. Research Com., 1917; Dobell, C., Gettings, H. S., Jepps, M. W., Stephens, J. B.: Special Report S. No. 15, 1918; Dobell, C.: Brit Med. Jour., Nov. 4, 1916; Fontham, H. B.: Lancet, p. 1165, June 10, 1916; Ficker, M.: Ann. Paulist. Med. et Cirurg., 5-2-335; Findley, G. M.: Lancet, p. 755, May 19, 1917; Fischer, W.: China Med. Jour., Vol xxxii, No. 1, p. 13, 1918; Fischer, W.: Deut. Arch. f. klin. Med., 118-2-129, 1915; Fin, P. C.: Abs. in Trop. Dis. Bull., Vol. xii, No. 5, p. 287, 1918; Gunn, J. W. C., Savage, R. E.: Jour. R. A. M. C., Vol. xxxiii, No. 5, p. 418, 1919; Hall, I. W., Adam, D. C., Savage, R. E.: Brit. Med. Jour., p. 174, Aug. 5, 1916; Hughes, T. A.: Ind. Med. Gazette, 54-4-139, 1919; Jepps, M. W., Meakins, J. C.: Jour. R. A. M. C., Vol. xxix, No. 6, p. 704, 1917; Jepps, M. W.: Brit. Med. Jour., p. 616, Nov. 4, 1916; Kofoid, C. A., Kornhauser, S. I., Sweezy, Olive: Arch. Int. Med., Vol. xxiv, No. 1, p. 35, 1919; Leboeuf, A., Brown, P.: Bull. et Mém. Soc. Méd. des Hôp. de Paris, 32-27-1602, 1916; McAdam, W.: Lancet, p. 15, Jan. 5, 1918; McKinnon, D. L.: Lancet, p. 386, Sept. 21, 1918; Martin, C. J., Kellaway, Williams, F. E.: Jour. R. A. M. C., Vol. xxx, No. 1, p. 101, 1918; Matthews, J. R., Smith, A. M.: Ann. Trop. Med. Parasitol., Vol. xiii, No. 1, p. 83, 1919; Rangel, Prestana B.: As. Paulist. Med. et Cirurg., 8-5-101, 1917; Ravaut, P., Krolunitski, G.: Presse Médicale, Vol. xxiv, No. 37, p. 289, 1916; Rocke, W.: Lancet, p. 297, Feb. 24, 1917; Sanford, A. H.: Jour. A. M. A., Vol. lxvii, No. 26, p. 1923, 1916; Savage, R. E., Young, J. R.: Jour. R. A. M. C., Vol. xxix, No. 3, 1917; Tribondeau, Fichet: Bull. Acad. Méd., 75-11-317, 1916. Turner, O. P., and Taylor, N.: Jour. R. A. M. C., Vol. xxviii, No. 3, p. 245, 1919; Wenyon and O'Connor: "Human Intestinal Protozoa in the Near East;" Wenyon, C. M.: Jour R. A. M. C., Vol. xxvi, No. 4, p. 445, 1916; Woodcock, H. M.: Jour. R. A. M. C., Vol. xxiv, No. 3, p. 290, 1917; Woodcock, H. M., Jour. R. A. M. C., Vol. xxxii, No. 3, p. 281, 1919.

[2] Walker, E. L.: Phil. Jour. Sc., Vol. vi, p. 259, 1911.

[3] Wenyon, C. M., and O'Connor, F. W.: "Human Intestinal Protozōa in the Near East," 1917.
[4] Kofoid, C. A., Kornhauser, S. I., and Plate, J. F.: Jour. A. M. A., Vol. lxxii, p. 1721, 1919.
[5] Dobell, E.: "The Amoebae Living in Man," 1919.
[6] Mathias, C.: Bull. de la Soc. Méd. Chirurgie de l'Indo-Chine, June 8, Sept. 14, Nov. 9, 1913, and April 19, 1914.
[7] Donaldson, R.: Lancet, Vol. ii, p. 571, 1917.
[8] Du Mez, A. G.: Phil. Jour. Sc., Vol. x, Sect. B, p. 73, 1915.
[9] Lillie, D. G., and Shepheard, S.: Jour. R. A. M. C., Vol. xxix, No. 6, p. 700, 1917.
[10] Jepps, N. W., and Meakins, J. C.: Brit. Med. Jour., p. 645, Nov. 17, 1917.
[11] Gunn, J. W. C., and Savage, R. E.: Jour. R. A. M. C., Vol. xxxiii, No. 5, p. 418, 1919.
[12] Turner, O. P., and Taylor, N.: Jour. R. A. M. C., Vol. xxxiii, No. 3, p. 245, 1919.
[13] Dobell, C.: Special Report, Series No. 4, p. 51, 1917.
[14] Dale, H. W., and Dobell, C.: Jour. Pharm. and Exper. Ther., Vol. x, No. 6, p. 399, 1917.

THE AFTER-TREATMENT OF A DISLOCATED ELBOW.

BY ERNEST T. SAEGER, M.D., BOSTON.

THE purpose of this paper is to emphasize the importance of the after-treatment of a posterior dislocation of the elbow—the usual variety of dislocation in the elbow region. Several surgeons have called attention to the fact that myositis ossificans traumatica very often occurs in the muscles near the elbow following an injury in that region. This condition appears very frequently following a fracture in the elbow region, but it is also not rare after a simple dislocation. Lehmann has reported 37 cases of post-traumatic ossification at the elbow joint occurring at his clinic during a period of eight years. The ossification followed posterior dislocation in 19 of these cases.

Various explanations have been made as to the origin of intramuscular masses of bone after trauma. One theory is that osteomata may arise from periosteum. The affected muscle is crushed and the adjacent area of periosteum is injured. Cells of the injured periosteum proliferate, escape into the pulpy area of muscle and there develop. A mass of bone is formed which may have only a loose connection with the periosteum or may become entirely detached from it. Or a muscle in action receives a blow. Some of the fibres tearing loose from their origin and retracting into the mass of muscle still connected with the bone carry with them particles of periosteum. These particles of periosteum grow in the new environment, are true bone grafts, and can form intramuscular osteomata unconnected with, though originating from the periosteum. Or, as a result of one trauma a regular flap of periosteum is detached from the bone in whole or in part and being drawn into the belly of a muscle, develops there, forming an osteoma. It is said that a bone cyst may form thus.

The Cohnheim theory of the origin of tumors states that osteomata are primarily muscular, and when connected with bone this connection is entirely secondary. There have been present in muscle aberrant masses of embryonic material originally provided for the development of the normal bone, but unused; they have lain in the muscle until stimulated to growth by trauma.

Ziegler assumes that in subjects of myositis ossificans, whether traumatic or progressive, there is a congenital diathesis of the connective tissue of the muscles, fascia, tendons, and ligaments in that they become endowed with powers normally belonging to periosteum alone.

Various observers differ as to whether the process is a tumor or inflammation. Grawitz and Salmon investigated and pronounced the disease inflammatory. Clinically, they found the temperature often elevated in the early stages and they believed that the acuteness, the amount of swelling, and the tenderness of the affected muscles all indicated inflammation. Microscopically, there was early cloudiness, later degeneration of the muscle fibres and small cell infiltration of the connective tissues around the altered parenchyma. The blood-vessels in the neighborhood were enlarged. From the study of one of his cases, Binnie believes that one is forced to admit the probability of the bone tumor being the result of proliferation and metamorphosis of intramuscular connective tissue.

The elbow joint has a great tendency to produce irregular masses of callus not only connected with its bony points, but also in the surrounding muscle. As the formation of callus beneath stripped periosteum or in the muscle may hinder the development of functional activity, the after-treatment has much to do with functional return. The brachialis anticus and the triceps are the usual muscles involved in a post-traumatic myositis ossificans. Of the 19 cases of posterior dislocation reported by Lehmann, all showed new bone formation in the two muscles mentioned, part of it being of intramuscular formation.

Report of a case of posterior dislocation of the elbow:

Mrs. H—— came to the Out-Patient Department of the Peter Bent Brigham Hospital on April 5, 1918. She had fallen out of bed the night before and had injured her right elbow. Examination showed extreme swelling and discoloration in the region of the right elbow joint. The arm was held in nearly complete extension by the patient, as this seemed the most comfortable position. There was intense pain whenever attempt was made to flex the forearm. Extension of the fingers caused severe pain also. No evidence of fracture was found on physical examination, and the injury seemed to be a simple posterior dislocation of the elbow. This diagnosis was confirmed by x-ray examination.

The patient was given an anesthetic and the reduction made. The anesthetic was gas-oxygen with enough ether to obtain complete muscular relaxation. The reduction was easily performed as follows: the forearm was slowly extended and then slightly hyperextended. While an assistant held the patient's arm in this position, the operator grasped the lower end of the upper arm with both hands and pushed on the olecranon process with both thumbs while the assistant slowly flexed the patient's forearm. This method easily disengaged the coronoid process from the olecranon fossa, and caused it to pass on under the trochlea without tearing any more ligaments. The arm was then put up at right angles for a few days until the swelling had disappeared. It was then flexed to an angle of about 60 degrees and immobilized for a period of three weeks following reduction. The arm was now placed in a sling for a week and daily periods of baking, massage, and passive motion were instituted. Three weeks later, or six weeks after the reduction, there was still marked limitation of extension. The forearm could be extended only 10 degrees beyond a right angle. X-ray plates were made and showed no evidence of myositis ossificans, or bony callus around the joint. Hence the limitation of motion seemed due entirely to joint adhesions. The patient was again given a general anesthetic until there was muscular relaxation, and the adhesions were broken up without difficulty. Then followed another period of massage, baking, and gradual passive and active motion. Six weeks after the last anesthesia was administered the patient was discharged. There was no limitation of motion at the elbow joint and no deformity.

It would therefore appear that complete rest for a period of at least three weeks after reduction of dislocation has the greatest influence in reducing this tendency to ossification. We also know that these masses slowly absorb and disappear if irritation is not continued. Consequently a long immobilization of the arm in a flexed position will often cause their disappearance. Operative removal should be the last step in treatment if conservative methods have failed. The after-treatment which seems safest consists therefore in retention of the forearm in a position of 60 degrees flexion for about three weeks or until passive motion in the direction of extension is painless. Painlessness is an indication of complete healing of the ruptured capsule. After three weeks the arm is massaged and given light passive movements. It is kept in a sling for another week. Each day active movements short of pain production are encouraged, and function gradually returns. Due to the ruptured capsule, the period of immobilization has almost certainly resulted in the formation of firm joint adhesions. Possibly in some cases these adhesions can be broken up by active or passive motion, but it is more likely that another anesthetic will have to be given in order to remove the cause of any limitation of motion. This part of the after-treatment should be performed when there is no longer any progress under treatment by massage and passive motion.

CONCLUSIONS.

1. The elbow joint has a greater tendency than other joints to the formation of ossification in the neighboring muscles following trauma.

2. The use of early passive motion and massage following reduction of a dislocated elbow is contra-indicated.

3. There should be absolute rest of the arm for three weeks in order to make the development of myositis ossificans traumatica less likely.

4. The origin of new bone formation may be from osteoblastic cells which have wandered from the torn periosteum and proliferated, or it may be a metaplasia of the connective tissue of the capsule or intermuscular septa.

5. Unfortunately immobilization will almost certainly result in the formation of firm joint adhesions which will have to be broken up under general anesthesia.

Clinical Department.

THE USE OF THE THERMOMETER IN MENTAL DISEASES.

BY E. D. BOND, M.D., PHILADELPHIA, PA.,

Medical Director, Department for Mental and Nervous Diseases, Pennsylvania Hospital.

NOT long ago the thermometer was considered of no value in mental diseases. There was a tradition that the insane never got fevers. At present there is recognition of the importance of temperature records among the insane, but not enough. The general practitioner, if he meets the mental symptoms of the case first, seems to forget all about his thermometer and stethoscope. Even on the chronic wards of the hospitals for the insane, I suspect that more fevers would be shown if records were made more as a routine, and also if it did not take so much time and trouble to get records upon disturbed and resistive patients. On an admission ward, however, fevers occur frequently, and here and in the practice of the psychiatrist are to be found the opportunities for the further study of the relation of increased bodily heat to mental diseases.

From January 1, 1916, to the first week in July, seventy-one women were admitted to the Department for Mental and Nervous Diseases of the Pennsylvania Hospital. Fevers slight or severe, transitory or chronic, occurred in over 50 per cent., a surprising result for consecutive cases. Undoubtedly selection has had some part in determining this percentage—physicians perhaps tending to send deliria of certain grades to us, and the hospital making certain discriminations in favor of acute cases. The diagnoses, however, are sufficiently varied and show that fever has occurred in imbecility, epilepsy, arteriosclerotic dementia, general paralysis, dementia præcox and manic depressive psychoses. Of 19 cases of manic depressive insanity, 13 had fever and six did not. Of 19 cases of dementia præcox eight had fever and 11 did not, this being the only disease in which normal temperatures were found more often than the reverse.

This paper is an examination of the temperature charts found in these consecutive cases, singly and in groups. We have first a group of several initial fevers of from two to three degrees, subsiding to normal in from one to eight days. This group is shown in composite on Chart 1. We can see that such initial temperatures have little meaning for the mental disease. A drop to normal coincides with the coming of the patient under control, after the family, with insufficient advice and help, has allowed the patient to become constipated, or superficially infected from dirty teeth, nails or skin. Noticing the fever, however, is of value in emphasizing the need of immediate treatment; while such conditions undoubtedly mean little if treated they may mean much if neglected.

It has been our custom after getting the temperature to the normal line for a few days to discontinue the chart to the time when clinical indications arise for renewing it. In certain cases, however, we have picked up fevers by taking records without such clinical indications. Such a record as Chart 2 shows what happens sometimes and suggests that the routine use of the thermometer should continue at least through the first menstrual period. The use of the full monthly page of the average temperature chart, even with continued normal findings, seems justified as a routine measure.

A group of three long continued temperatures in general paralysis cases in shown in Chart 3.

Illustrations of fever in all sorts and conditions of defect and disease are supplied freely in the remaining cases; in an imbecile, for instance, at the menstrual period, and in five cases of gross cerebral damage (Chart 4).

I turn now to a group of seven cases, the first of which is undoubtedly to be classified as an infective psychosis, and the last as a true manic state. It is the sequence of these cases that I wish to emphasize, with special reference to the physical factors at the onset and the gradual changes in intensity and number of certain, often recurring, symptoms.

A short account of each of these cases is needed and will be found below, while the fever line is given in Chart 5 A and B with the appropriate number. The following characteristics for the whole group may be mentioned: This was the first attack for all cases, except the last; the ages at onset ranged from 26 to 49; the Wassermann reaction was negative for all seven cases, although the fourth case had had syphilis three years ago, followed by thorough treatment; none of the cases used alcohol.

Case 1. First attack at 33. Measles at 30, with gradual loss of weight since. For a month indefinite symptoms of pelvic inflammation. While in a general hospital, where she was sent in order to have a diagnosis made between a local inflammatory process and typhoid fever, she suddenly became desperate, tried to throw herself out of the window, had vague delusions of persecution. On admission disoriented, hallucinated, apprehensive, incessant, incoherent talk. Tube fed. Catheterized. In the second month pustules on the legs. Recovery in eight weeks. (Nine weeks total illness.)

Case 2. First attack at 32. Miscarriage five months ago. Purulent vaginitis on admission. At home, in a period of seven weeks, short depression followed by short excitement and then confusion. On admission disoriented, apprehensive, continual incoherent talk. Tube fed. Catheterized. In the second month a boil on the buttocks. Recovery in seven weeks. (Four months.)

Case 3. First attack at 49. For past three years gradual increasing fatigue, headache and backache. Pus and albumin in the urine on admission. Three weeks ago made remarks that could not be understood. Two weeks ago still in general hospital. She became grandiose, hallucinated, talked incessantly. On admission partly oriented, exhilarated, distractible, with spasmodic intermittent motor activity. On recovery, it was shown that she had no memory for the first ten days at the hospital. Recovery in three weeks. (Five weeks.)

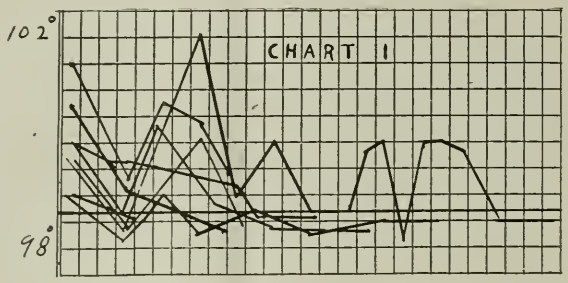
Case 4. First attack at 26. Syphilis three years ago with unusually conscientious treatment, resulting in six negative Wassermanns. Three weeks ago abortion, followed by operation at general hospital. Two weeks ago restless, began to see devils and ghosts. Two days ago salvarsan intravenously. One day before admission given salvarsanized serum by lumbar puncture. On admission slightly oriented, incessant talk, and continuous motor activity. Emotional state in general exhilarated, but very labile. Flighty and destructible. Rather fixed by unsystematized delusions of poison. Fragmentary insight. Tube fed. No change after one year.

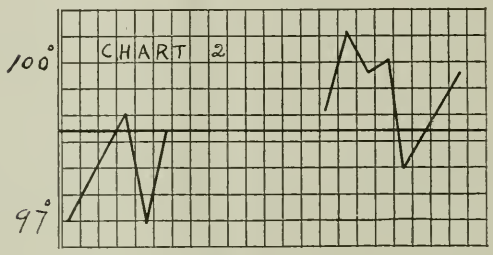
Case 5. First attack at 35. Two weeks ago "grippe." Yesterday temperature 104°. Signs of a valvular heart disease on admission. For four months a mild depression. For a week delusions of poisoning, hallucinations, alternating depression and hilarity. On admission disoriented, flighty, distractible, rhyming; extreme activity. Mood chiefly exhilarated, labile. After a month semi-stuporous, temporary paralysis on the left side, blisters on finger ends. After two months, condition about as on admission. Tube fed. Catheterized. Papular eruption second week. Recovery in a year.

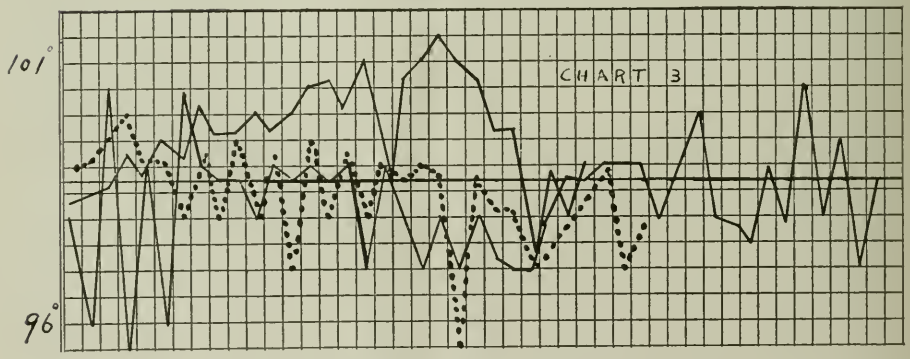
Case 6. First attack at 26. For eleven days fever, headache and backache, abdominal distress, "grippe." On admission small boil, albuminuria. For six months sensitive and worried. Seven days ago talkative, dazed, incoherent. On admission little or no orientation, flighty, distractible, incoherent at times. Extreme psychomotor activity. Mood unusually happy, playful; except on the eighth day during a sudden attack of apprehension. For several months quieting in motor activity but still flighty, distractible and showing contagious exhilaration. During most of the first two months she had furunculosis. Recovery in nine months. (Ten months.)

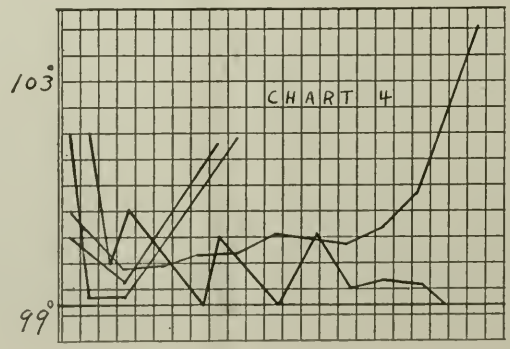
Case 7. Attack of manic depressive depression at 32. Second attack at 49. Menopause began six months ago. (Chills, sweats, head and backaches, falling sensations in abdomen.) December 18-25 confined to bed by grippe." December 26, laughing and screaming spells, talkative, flighty, exhilarated. On admission, psychomotor activity. Orientation little or none. On the second and fifth day hallucinations interrupted by short depressed periods in which the patient showed apprehension, self-accusation, was suicidal. The day after this second attack she said, "When I woke up I was as happy as a lark." At times later she was screaming, incoherent, threatening. Recovery in eight months. (Ten months.)

What is the best way to regard the gradualness of the transitions from one end of this scale to the other? Kraepelin[1] would refer us back to his concept of the manic depressive process as a whole. According to his point of view, we should say of our Case 7 in her second attack: If she had an attack of manic depressive insanity once, she has it again regardless of infection, fever or anything else." He goes much further than this in citing a case in the latest revision of his textbook: "I recall one patient who immediately after childbirth came down with what looked like a collapse delirium and quickly recovered, then after many years showed the picture of amentia and a thrombosis. There was a gradual transition from this state to an unmistakable manic excitement, in which she died. I have no doubt now that both of these attacks were manias." Secondly, Kraepelin would have us consider the purity of the clinical picture: in Case 7 the frankness of the exhilaration (here emphasized by depressive intervals), the lack of bewilderment, of hallucinations, etc. He does not dodge the issue: Case 6 is either manic depressive or it is not: the essential differential symptoms may now be covered up, but later


102°
CHART 1
98°


100°
CHART 2
97°


101°
CHART 3
96°


103°
CHART 4
99°

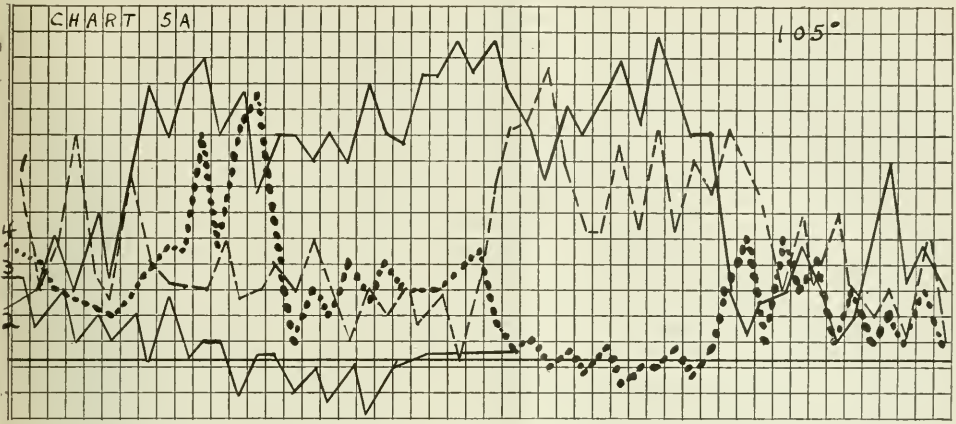
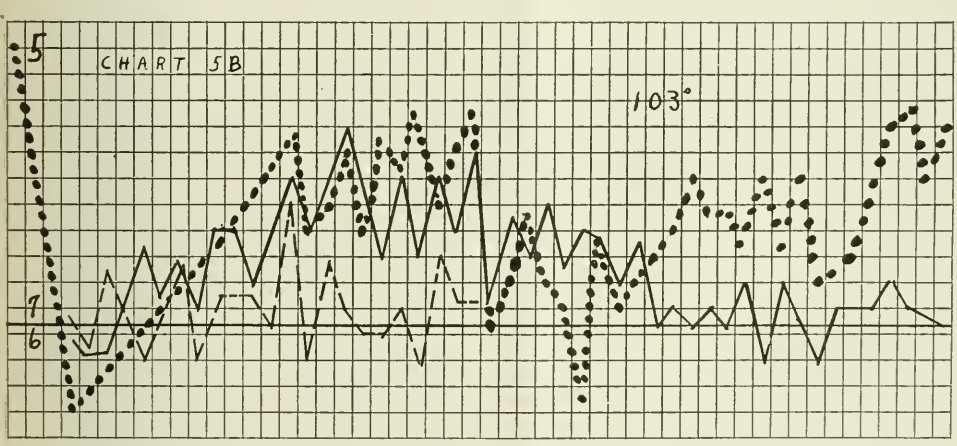
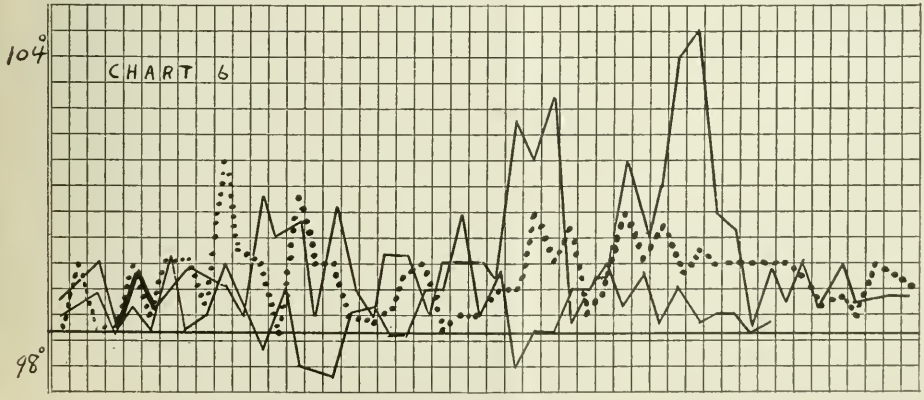


CHART 5A
105°


5
CHART 5B
103°


104°
CHART 6
98°

close clinical study will enable us to come back and take this case into the manic depressive group, or reject it.

Bonhoeffer[2] regards these transitions between our cases from a different viewpoint. According to him we may call Case 7 an endogenous manic, and at least Cases 5 and 6 as exogenous manias. He doesn't mind giving the term "true mania" to a disease picture which he believes has developed from an infection. It seems to him that this manic reaction is nothing else than a specific effect of certain toxic-infective materials. While Kraepelin is looking for variations in different infective toxins to explain different mental states (in which manic depressive conditions are not to be included) Bonhoeffer conceives that many differing toxins from different infective agents, will produce in a predisposed individual the same reaction, which may well be a manic depressive one.

In the consideration of these cases we are helped by adding a suppositious Case 8, a typical mania without infection and without delusions worthy of the name. The question then becomes—what is the relation of the central cases to this Case 8?

Cases 4, 5, and 6 have as their chief feature toxins whose origin (bacteria) are in a general way known—toxins which are producing on one side certain measurable physical changes in the body, and on the other side flight, distractibility, psychomotor activity and more or less exhilaration. Something in Case 8 is also producing the latter group of symptoms, but without physical changes which are measurable by our present day methods. The fact of personal predisposition underlies the infection as well as the mania. The series of cases points to a consideration of manic depressive symptoms as liberated directly, or indirectly, by a toxin.

In a last chart (6) are shown some cases which could be used to build a series of depressions paralleling the excitement group.

IN CONCLUSION.

All of these temperature records were made for women entering a small hospital between January 1 and July 7. One-half of them showed some fever, and fever was shown in many different diseases. Fever is now regarded as a conservative process: its definition is "the process of adaptation to such toxic agencies as can be neutralized by development of antibodies;" its producer is a protein in the blood. In a few of them we have the toxemia of severe infection producing or setting free symptom-complexes which remind us of manic depressive insanity.

In those cases where fever and psychosis seem independent a certain unity comes with the view that the body is engaged in two defense reactions at the same time.

REFERENCES.

[1] Kraepelin: Psychiatrie, 8th Ed., Vol. ii, Chapt. iv.
[2] Bonhoeffer: Die Psychosen, 1912, Hb. d. P., Sp. 1, iii, i, 109.

Book Review.

The Modern Treatment of Mental and Nervous Disorders. By BERNARD HART, M.D. New York: Longmans, Green & Company. 1918.

The problems presented to the profession by mental and nervous disorders have been attacked throughout medical history from different points of view. This volume, *The Modern Treatment of Mental and Nervous Disorders*, presents the two main schools of thought which have arisen in regard to the causation and treatment of these conditions. One group maintains that physiological disorders in the brain or other organs are responsible for mental and nervous disturbances; the psychological theory, on the other hand, attributes them to mental causes. This volume expresses the belief that in every case both physiological and psychological factors are present in the chain of causation. In cases where the former predominate, physiological methods of treatment should be emphasized; where psychological factors are predominant, treatment must be of a psychological character. Investigation and research are needed in order to determine more accurately the relative importance of these two types This book considers the facilities available for treatment; for actual insanity there seems to be ample provision, but for the early stages of mental disturbance and for nervous disorders, adequate means are lacking. The war has made it necessary to provide treatment for numerous cases of "shell shock"; the author of this book asks that it be remembered that these cases are essentially the same as many nervous disorders in civil life, and that the methods which have been used with success during the war, together with organized investigation and teaching, will be made available for civilians.

THE BOSTON
Medical and Surgical Journal

Established in 1812

An independently owned Journal of Medicine and Surgery, published weekly under the direction of the Editors and an Advisory Committee, by the Boston Medical and Surgical Journal Society, Inc.

THURSDAY, NOVEMBER 4, 1920

Editors

Robert M. Green, M.D., *Editor-in-Chief and Manager*
George G. Smith, M.D., *Assistant Editor*
Walter L. Burrage, M.D., *For The Massachusetts Medical Society*

Advisory Board

Edward C. Streeter, M.D., Boston, *Chairman*
Walter P. Bowers, M.D., Clinton
Walter B. Cannon, M.D., Cambridge
Harvey Cushing, M.D., Brookline
Homer Gage, M.D., Worcester
Reid Hunt, M.D., Boston
Lyman A. Jones, M.D., Swampscott
Roger I. Lee, M.D., Cambridge
Robert B. Osgood, M.D., Boston
Milton J. Rosenau, M.D., Brookline
Alfred Worcester, M.D., Waltham

Subscription Terms: *$5.00 per year, in advance, postage paid for the United States, $6.56 per year for all foreign countries belonging to the Postal Union.*

An editor will be in the editorial office daily, except Sunday, from twelve to one p.m.

Papers for publication, and all other communications for the Editorial Department, should be addressed to the Editor, 126 Massachusetts Ave., Boston 17. Notices and other material for the editorial pages must be received not later than noon on the Saturday preceding the date of publication. Orders for reprints must be returned in writing to the printer with the galley proof of papers. The Journal will furnish free to the author, upon his written request, one hundred eight-page reprints without covers, or the equivalent in pages in the case of articles of greater length.

The Journal does not hold itself responsible for any opinions or sentiments advanced by any contributor in any article published in its columns.

All letters containing business communications, or referring to the publication, subscription or advertising department of the Journal should be addressed to

Boston Medical and Surgical Journal

126 Massachusetts Ave., Cor. Boylston St., Boston 17, Massachusetts

DIETARY EXPERIMENTS IN PRODUCING PELLAGRA.

In an attempt to determine whether or not pellagra is a disease caused by dietary deficiency, investigations have been made in this country, and also in Egypt. A comparison of the evidence yielded by these two experiments is of considerable interest, particularly as in the experiment conducted in this country a deliberate attempt was made to produce the disease in subjects who volunteered for the purpose, while in Egypt pellagra broke out as a natural consequence of a condition favorable to the development of the disease.

The experiment undertaken in this country at the Rankin Farm of the Mississippi State Penitentiary is recorded in Bulletin 120 of the Hygienic Laboratory of the Public Health Service. In 1915 twelve white convicts volunteered for the experiment, to test the possibility of producing pellagra in previously healthy men by means of a one-sided monotonous diet composed chiefly of cereal products, which previous studies have given reason to believe is associated with a high pellagra incidence. The men were segregated and placed under special guard, and eleven remained throughout the experiment. There is no history of any previous occurrence of pellagra on this farm, and no direct communication with the outside world was allowed the men under experimental observation. The sanitary conditions were good, and no work involving more than a moderate light muscular exertion was required of the volunteers. From February 4 to April 19, the men were kept under observation without any change being made in the regular prison fare, thereby allowing opportunity for observing any evidence of existing pellagra had there been any. The second period extended from April 19 to October 31; during this time the volunteers were subjected to an experimental diet in which the principal ingredients were highly milled wheat flour, maize meal and grits, cornstarch, white rice, cane sugar, sweet potatoes, pork fat, cabbage, collards, turnips, turnip greens, coffee, Royal baking powder, salt, and pepper. During the first three months some buttermilk was used in the making of wheat biscuits. This study suggests that in the production of pellagra, the dietary factors to be considered as possibly essential are: (1) an amin acid deficiency; (2) a deficient or faulty constitution of the mineral supply, possibly, but doubtfully; (3) a deficiency in the fat soluble vitamine intake, and perhaps (4) an as yet unknown (vitamine ?) factor. It still remains to be determined what combination of these factors constitutes the specific pellagra-producing dietary defect or defects. As pellagra developed in at least six of the eleven volunteers during the time in which they were observed, the investigators feel justified in concluding that diet is at least the primary controlling etiological factor in the development of pellagra.

To a similar conclusion point the results of the investigations carried on at Port Said, Egypt, where a group of Armenian refugees landed after being driven from their homes near Antioch because of Turkish oppression. The group of four thousand survivors, four hundred of them children and five hundred others between four and fourteen years, had been subjected to privations of all sorts before reaching the camp at Port Said. After a period of about six months, a disorder recognized after-

wards as pellagrous, broke out, affecting about five hundred of the campers. The report of the investigation, undertaken by Dr. White, deputy director of the public health laboratories of Cairo, states that there was apparently no special distribution of the disease in relation to the different parts of the camp. The workmen, chiefly farmers employed from outside the camp, were obliged to live on the camp diet, having comparatively little money with which to supplement their diet. Other conditions were not favorable to the development of the disease; the water supply was above suspicion, the disposal of excreta was managed in a sanitary way, and there was no reason to believe insect carriers had a part in the outbreak. An improvement in the dietary, however, with no further development of the disease thereafter, seems to leave no doubt in this case, as in the case of the experiments conducted at Rankin Farm, of the significance of dietary deficiency in the development of pellagra.

MEDICAL NOTES.

U. S. PUBLIC HEALTH SERVICE HOSPITAL FOR "SHELL-SHOCKED" SOLDIERS—The new government hospital where the U. S. Public Health Service will provide special care and treatment for "shell-shocked" soldiers was opened at Perryville, Maryland, on September 24, with the transfer of over 100 patients from the temporary hospital at Cape May, N. J. The new institution is in charge of Dr. E. H. Mullan, an experienced regular officer of the Public Health Service, who has been the commanding officer at Cape May.

The Government reservation at Perryville offers exceptional opportunities for special care and treatment of the mild types of mental disorders included in the term "shell shock"; for in addition to the main hospital building, there are numerous individual cottages where special care and a home-like environment can be provided when it is necessary for the promotion of the patient's recovery.

At the present time the Public Health Service has under treatment over twelve thousand discharged soldiers suffering from "shell shock" and other mental disorders. Of these, 5578 are in hospitals operated by the Service, the others are in other hospitals where proper care and treatment are provided under contract.

Reports received from the Government tuberculosis sanatoria of the United States Public Health Service demonstrate the great value of occupational therapy as an adjunct in the treatment of discharged and disabled soldiers. Occupational therapy as carried out by the reconstruction aides of the United States Public Health Service, consists chiefly of mental work and manual handicraft designed for curative and diversional purposes. Physicians in charge of tuberculosis sanatoria often have been discouraged by the failure of a large proportion of their patients to remain under treatment a sufficiently long period. Many of the patients, disregarding the advice of their physicians, leave within a month of their admission. The Government report states that out of 392 patients admitted to one sanatorium, 263 took occupational therapy and 129 did not. Of the former only two patients left the hospital against the advice of physicians in charge. On the other hand, of the 129 who did not take occupational therapy, 83 either deserted or left the hospital against the advice of the physicians in charge. This is less than 1% among the former, as against 65% among the latter class of patients.

Occupational therapy is one of the latest developments in the modern care of patients. It is applicable to all kinds of conditions, both for direct, curative action, for the improvement of function of muscles and joints, and for the purpose of stabilizing the patient by increasing his morale. The results obtained by the United States Public Health Service have been excellent. Occupational therapy is not vocational training. In the hospitals conducted by the U. S. Public Health Service occupational therapy is given to bed patients and to convalescent patients. Not until the patient has recovered is this form of therapy succeeded by vocational training. The Public Health Service operates the largest unit now engaged in occupational therapy and physiotherapy, and employs over 300 expert aides, the greater part of whom are women.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending October 16, 1920, the number of deaths reported was 184 against 203 last year, with a rate of 12.83 against 13.29 last year. There were 37 deaths under one year of age against 39 last year.

The number of cases of principal reportable diseases were: Diphtheria, 40; scarlet fever, 31; measles, 7; whooping cough, 20; typhoid fever, 2; tuberculosis, 35.

Included in the above were the following cases of non-residents: Diphtheria, 10; scarlet fever, 3; whooping cough, 1; tuberculosis, 5.

Total deaths from these diseases were: Diphtheria, 5; whooping cough, 2; typhoid fever, 1; tuberculosis, 8.

Included in the above were the following cases of non-residents: Diphtheria, 2; tuberculosis, 1.

Infantile paralysis cases, 11; deaths, 3.

Infantile Paralysis in Boston and Massachusetts.—Reports made to the Massachusetts State Department of Health of new cases of infantile paralysis for the forty-eight hours ending September 27 included thirteen cases, reported from the following towns: Reading, two; and one each from Boston, Beverly, Malden, Brookline, Quincy, Cambridge, Weymouth, Methuen, Marblehead, Natick and Newton. For the week ending September 25, the total new cases were sixty-eight against sixty-six for the previous week; fifty-three for the week before that and fifty-two for one week prior to that. On September 28, twenty-five new cases were reported for the preceding twenty-four hours. Of these cases seven were reported from Boston, three from Haverhill, two each from Brockton and Waltham, and one from Lowell, Beverly, Holliston, Malden, Somerville, Winthrop, Medford, Lexington, Manchester and Framingham. The epidemic reached its height in 1916 during the week of September 23, with a total number of 186 cases. The highest weekly figure reached this year has been 68, during the week ending September 25.

Clinical and Surgical Association of Massachusetts.—At a meeting held recently in Worcester there was organized the Clinical and Surgical Association of Massachusetts. The objects of the Association and methods for work in the future were clearly defined. It was felt that the organization should be democratic, and that no surgeons upon whom major surgical responsibilities must of necessity fall should be excluded, provided they measure up to the legal requirements of the state in which they reside and have had adequate education and have observed ethical standards. The following officers of the Association were elected: George H. Gray, M.D., F.A.C.S., Lynn, president; C. A. Bonney, M.D., New Bedford, and C. B. Gay, M.D., Fitchburg, vice-presidents; S. Chase Tucker, M.D., Peabody, secretary; and M. A. Tighe, M.D., Lowell, treasurer.

The Association has announced that in future it will undertake to provide:

1st. An annual surgical congress in Boston—the first one to be held November 10th and 11th, 1920, at which the clinics will be given at the leading hospitals by leaders of the profession,—which will be comprehensive and democratic.

2nd. General meetings at which addresses on subjects of special interest will be given by someone who is recognized as an authority in his line.

The necessary business of the Association will be transacted at these meetings.

Ample provision for the entertainment of the members, their families and guests.

3rd. The Association will provide opportunity for full discussion of all matters concerning the profession and material interests of its members, and the public, and institute such means for their accomplishment as seems best to the majority.

Under material interests the matter of Legislation would seem to be of special importance, and a special committee is projected whose business shall be to watch and report upon matters of that kind with recommendation for action.

The Charter of this Association is open till the close of the November Congress, in order that all who believe in its purposes and are honestly trying to help, and looking forward to a fuller coöperation, may join.

A welcome is extended to all surgeons eligible to membership in our Association, and it is necessary that prompt application be made to insure adequate accommodations for the November Congress.

Program of Events will be forwarded at a later date to all who express an interest or desire to unite themselves with this organization.

NEW ENGLAND NOTES.

French Orphanage Fund.—The New England branch of the French Orphanage Fund has reported contributions to the amount of $618,987.86.

Miscellany.

ABSTRACT OF REPORT ON EYE INJURIES.

BY FRANCIS D. DONOGHUE, M.D., BOSTON,
Medical Adviser, Massachusetts Industrial Accident Board.

THE purpose of the medical committee in preparing this report should be not to go back of existing laws or to concern themselves with the reasons underlying specific compensation payments. A principle honored by general acceptation must serve the purpose of practicability. It may be considered unwise, therefore, to suggest radical changes, but rather to concern ourselves with simplifying by broad interpretation the administrative problems.

It is our purpose to call attention to statutory defects concerning the conditions under which specific compensation is to be granted following ocular injury. In some acts it is laid down that specific compensation is to be granted when vision is reduced to one-tenth of normal with glasses. But what constitutes normal, and how is a board of laymen to determine intricate points in higher physics when statutory language is either defective, ambiguous, or nonspecific? To correct this situation, let us lay down two theses:

1. Normal central visual acuity is not normal vision.

2. One-tenth of normal vision does not mean one-tenth of normal central visual acuity alone.

Attempts to reduce complex human mechanism to formulas are very old. Nowhere has this tendency been more pronounced than in the attempt to formularize visual economics. And both effort and object are alike laudable were it not for the fact that we are dealing not in terms of constants nor of approximate constants but with a multiplicity of variables admitting of such broad limits of interpretation that in each instance the variable becomes a subject of expert discussion. Thus when the number of such variable factors approach 15 to 20 to the completed formula with the end design of estimating visual diminution in percentage, together with its value to the particular individual, of what practical value is such a completed formula if each component term is again to be made the object matter of expert controversy and time loss?

The human machine is not the sum of its parts; a man is not the sum of his functions. He is the sum of his functions plus an individuality. This individuality—it is bromidic to say it—is the difference between success and failure, between artistic achievement and barren years of effort, between efficient economic output and discouragement.

To particularize: for 35 years attempts have been made to so estimate visual diminution or loss in terms of central and peripheral visual acuity—in percentage, in terms of age, occupation, social status, general health, education, physical type—residual condition of opposite impaired or unimpaired eye, and many other more or less factors with the idea of rule of thumb adjustment in visual loss from injury or disease. As in so many other avenues of human activity, such data can be computed only as integers and measured in their entirety by the life trained individual who can properly separate the essential from the non-essential and winnow grain from the chaff.

Formula construction applied to the human eye and its functions has been done 25 years since, and thoroughly done, admitting of but little improvement. If you concede the value of a formula having for its aim estimation of economic visual loss in percentage it is ready at hand and has been so for a quarter of a century and appeared in *Visual Economics*, by Magnus and Wurdemann, 1902. More recently we have had the efforts of the Chicago Ophthalmological Society reported by Dr. Frank Allport in the *Monthly Labor Review* of the United States Bureau of Labor Statistics of April, 1920.

The need is not so much for a measure of central visual acuity under this table or that (and Snellen serves perfectly well without embellishment) as a measure of practicable vision. No attempt to modify any present standard of central visual acuity meets this requirement, and so many are the factors to be taken into consideration in the individual case, some of which, naming only a few, are intensity of the light sense, size and character of the visual field, industrial requirement of the individual case, previous training, doctrine of master eye associated with right or left handedness, and muscular errors, that any attempt to create an arbitrary table which would adequately evaluate these factors is a practical impossibility.

It is, therefore, evident that those men involved with the practical administration of the law involving complex formulas and scientific facts must choose a practical and working ground between tables and charts or the other extreme of mathematical formulas, impracticable by reason of their complexity even if correct in the scientific sense.

In administering present laws and in striving for changes, such laws as have the wording "to one-tenth of normal vision with glasses," are unjust and cannot be too quickly discarded. Three-tenths should be a minimum, and specific compensation should be granted when vision is reduced to three-tenths of normal central visual acuity if no concurrent field or muscular defect exists.

Specific compensation for the loss of vision should be within the discretion of industrial-accident boards, who in granting such compensation should have in mind the occupational visual requirements, previous training of the injured employee, and the fact that one eye

was better than the other before the injury. When central visual acuity of five-tenths of normal with glasses exists, specific compensation should not be granted unless a considerable defect of the visual field exists whereby the resulting vision is impracticable.

Industrial-accident boards should take into account not only central visual acuity but consider central or peripheral field defects of permanent or annoying conditions, such as dazzle, blend, or diffusion circle. Arbitrary construction of present laws may work an injustice in a very large portion of cases.

To adjudge such cases, the rationale must be:

1. Is binocular vision necessary for the occupation?

2. Does the employee have binocular vision?

3. Is the resultant vision of the injured eye such as to produce useful or non-useful binocular vision?

It then follows that for an equitable award in the given case, at least the following procedure must be carried out:

1. The exact vision of either eye must be established.

2. The master eye must be determined.

3. The visual needs of the particular occupation must be considered (not difficult).

4. A decision should be rendered, after hearing testimony on those three points, as to whether the vision in the injured eye is so low as to preclude useful binocular vision in the individual's occupation.

In board practice this would readily work itself out (which amounts to a paraphrase of the foregoing)—

1. Categorizing occupations in terms of their visual requirements.

2. Obtaining visual data of injured and other eye by impartial examinations, together with a statement as to binocular vision and master eye.

3. Determining by conference, hearing, or even by impartial report alone (as is possible in all but very few of these cases) whether the resultant vision in the injured eye is so efficient in producing binocular vision that the binocular vision thus obtained will enable the employee to carry on his occupation as before.

The boards may well consider the establishment of standard methods of examinations, and as the law at present reads "to one-tenth of normal vision," the committee considers standardization upon that basis, although the same standards apply if the minimum vision were stated as two-tenths or three-tenths, and as many laws read "with glasses," that also is considered.

a. A definition of normal vision expressed in terms of ability to correctly interpret form at infinity.

b. Test object and illumination.

c. Examination methods.

d. What is considered one-tenth of normal vision.

e. A word as to the practicability of that part of the law which reads "with glasses."

a. By normal vision is meant the ability to correctly interpret at infinity symbols that are constructed according to definite mathematical formulas, in that the letter or ideograph as a whole must subtend an arc whose visual angle is five minutes and the component parts of the letter a visual angle of one minute measured from the top and bottom of the letter to the nodal point of the eye. The symbols used may be letters in English (Roman), Hebrew, Russian, Greek, or any other form of letters or hieroglyphics or ideographs provided only the arc subtended be five minutes and the parts one minute.

b. The letters or symbols should be illuminated more diffusely than focally from any steady source and within rather broad limits, say of from 2.5 to 5 foot candles when artificially illuminated (and for purpose of uniformity artificial illumination is always best), but in no case to be so overilluminated that glare and cross lights result. The illuminating source should be screened from the examined. The symbols should, except in the instance of measuring the light sense, as in glaucoma or optic atrophy, show marked contrast to the background. Some have personal preference for India ink or lampblack etched into white porcelain and as second choice black printed letters on a white card.

c. The examined is placed at infinity (the distance at which accommodation and convergence no longer act, roughly 21 feet) and is instructed to read—each in language of preference—and in the case of illiterates to tell the content of an ideographic card. Having ascertained the visual acuity of either and both eyes at infinity, the individual is moved to different distances and again told to read to the extent of his ability. This properly done is a time-consuming maneuver but has the desirable quality of exactness in that a half dozen or a dozen distances may be tried and the result fraction or percentage must always be the same. Such procedure is the only way that exact vision may be obtained and proved, and must accord with the corroborative results of skiascopy, keratometry and examination of the fundi. These last three should always be done, and a record of vision without these records, while not valueless, is inexact. With them in experienced hands there can be no cavil as to visual results, either in those cases which are either just above or just below the arbitrary one-tenth of normal standard the law sets. Such method contrasts violently with the rule of thumb adopted in quick examinations of placing the patient 20 feet from the card and asking him if he can "see the big E." The necessity of using skiascopy, keratometry, and fun-

dus examinations is shown if the law expressly states vision with corrective glasses, and corrective glasses are properly not a matter of subjective choice as an individual part, but are a carefully worked out formula obtained objectively by these methods before being put upon the patient for correction. To sum up, either eye is tested separately at varying distances for the purpose of proof and checking, and further checked by objective methods.

d. That eye should be considered below one-tenth of normal which with correction fails to read test symbols designated for ten times the distance of the patient from the symbol, repeating the test at varying distances and checking for uniformity of results and finally showing a consistence with objective tests.

e. A word as to glasses. In just the same way that a thick biconvex lens of 12 diopters over an eye operated for cataract can not be worn for practical purposes when a good opposite eye is present, and consequently for purpose of the law such an eye is to be considered as lost or valueless, just so impracticable is the correction of the irregular astigmatism caused by corneal cut (and a very large percentage of industrial eye injury results in corneal scarring from cut, burn, or traumatic ulcer), since the glass which corrects must needs be adjusted to such a degree of nicety as regards axis that in event of opposite sound eye, the glass which corrects the injured eye is generally of no value to a laborer or an artisan, and oftentimes is not tolerated even when urged. In this respect the law "with glasses" should be as broadly interpreted as in the instance of the cataract glass. In the working out of such a revised law a proper report of ocular examinations should contain a statement, not merely of the central visual acuity, but also a statement of field measurement of the light sense, refraction, and adaptation index of the particular eye to the individual's occupation both before and after injury (if possible).

To summarize, a standard eye examination would be about as follows:

1. A visual test—with vision expressed for either eye, according to Snellen or Monoyer, both in the refracted or unrefracted states under a diffused light of not less than 2-foot candles and not so great as to produce glare. This gives wide range.
2. The nature of the refraction.
3. A statement as to the fundus and refractive media.
4. The retinoscopic data of either eye.
5. The ophthalmometric data of either eye.
6. The visual fields—in important cases reduced to diagrams in degrees—giving peripheral limitations, central, paracentral and peripheral scotomata.
7. Data of external eye.
8. The muscular balance.
9. Date of adnexa.

RECENT DEATH.

DR. HARRY EDWARD SEARS of Beverly, Mass., died October 20, 1920, in his office at 25 Broadway.

Dr. Sears was born April 11, 1870, the son of Edward S. and Isabelle (Wagner) Sears, and was a descendant of Richard Sears of the Plymouth Colony of 1633. He was educated at Boston Latin School and at Harvard, where he received the degree of A.B. in 1893; and at Harvard Medical School, from which he was graduated in 1896. For more than 20 years he had been a practising physician and surgeon in Beverly, during which time he had been visiting surgeon to Beverly Hospital. He joined the Massachusetts Medical Society in 1897 and had been a councilor from the Essex South District. At the time of his death he was associate medical examiner for the seventh Essex District.

When the United States entered the World War Dr. Sears at once interested himself in the formation of Field Hospital Unit No. 30, which went to France from Fort Ethan Allen, Vermont. Before going, however, he helped to organize two similar units.

Upon his arrival in France he was assigned to the 5th Sanitary Division and later was transferred to Evacuation Hospital No. 1, and still later to No. 37. He received his discharge from the Army in May, 1919.

Dr. Sears' service as a member of the Medical Corps of the American Expeditionary Forces in France was such that he was promoted to the rank of lieutenant-colonel. He was one of the recognized expert pistol shots in the country and represented the United States at the Olympic meet at Stockholm in 1908.

Dr. Sears was married in 1902 to Miss Myrtle Walker of Beverly who, with two sons, survives him. He was a Mason and a member of various medical fraternities and social clubs.

SOCIETY NOTICE.

CLINICAL AND SURGICAL ASSOCIATION OF MASSACHUSETTS.—The first meeting of the Clinical and Surgical Association of Massachusetts will be held at the Boston City Club on November 9, 10, and 11. At the first annual dinner on November 9, addresses will be made by the President, Dr. George H. Gray, F.A.C.S., and by Dr. John B. Deaver, F.A.C.S., Philadelphia. On November 10 clinics will be held at the principal hospitals in the city during the day; in the evening there will be a general meeting at which remarks will be made by Dr. F. J. Cotton, F.A.C.S., Chairman of the State Branch of the American College of Surgeons, and an illustrated address on "Osteoplastic Surgery" will be given by Dr. F. H. Albee, F.A.C.S., New York. Clinics will be held on November 11.

All surgeons connected with regularly established hospitals in Massachusetts and adjoining states are urged to attend this first clinical meeting to familiarize themselves with the purposes and working plans of the Association. The officers of the Association are: Dr. George H. Gray, F.A.C.S., Lynn, President; Dr. C. A. Bonney, New Bedford, and Dr. C. B. Gay, Fitchburg, Vice-Presidents; Dr. S. Chase Tucker, Peabody, Secretary; and Dr. M. A. Tighe, Lowell, Treasurer.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, 8 The Fenway, Thursday, November 4, 1920, at four o'clock.

Candidates should make personal application to the Secretary and present their medical diploma at least one week before the examination.

RICHARD H. MILLER, *Secretary*.
402 Marlborough Street, Boston.

For use with the

Modified Bucky Diaphragm

Eastman Dupli-Tized X-Ray Films

(With or without screens)

Secure the *maximum* efficiency

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

WANTED

At the Taunton State Hospital a male assistant physician and a female assistant physician. For further information address

Dr ARTHUR V GOSS, Supt.
Taunton State Hospital
Taunton, Mass. 9-tf,B327

FOR SALE

Massachusetts $5000.00 country practice, with ideal home in best of community. Price $8000.00, $2500.00 cash. Address

A240, Care of
Boston Medical and Surgical Journal
4-tf

FOR SALE

A 12-room house, beautifully located on hill in Lexington, Mass., in fine residential section, near electrics and trains. Fine view. Three fireplaces, combination hot air and hot water heater, gas lighting, some hardwood floors, large, light, airy rooms, about 74,000 sq. ft. of land, fine fruit and shade trees. Ideal spot for beautiful home or private hospital. Address

ELLIS W. TOWER
3 Bloomfield St., Lexington, Mass.
Tel. Lexington 196-W 17-4,B341

FOR SALE

A Scanlan-Morris four-piece gas sterilizer in first-class condition. Also a perfect skeleton (male) all set up. These can be seen by appointment. Address

A249, Care of
Boston Medical and Surgical Journal
Tel. Roxbury 353 9-tf

FOR SALE

In a community of 10,000 population in southern New Hampshire, practice with fixtures and drugs, and a fully equipped 12-bed hospital at the actual valuation price of personal and real estate. An excellent opportunity to do surgery. Address

A247, Care of
Boston Medical and Surgical Journal
8-tf

FOR RENT

384 Commonwealth Ave. One room in physician's suite, suitable for office. Twenty-four hour telephone and door service.

Telephone B. B. 6712
18-4,B343

WANTED

Male assistant physician at Maine School for Feeble-Minded, West Pownal, Maine. State age, preliminary and college training, and experience. Give references. Salary dependent upon qualifications. Apply to

Dr. S. E. VOSBURGH, Supt.
18-3,B342

A VACANCY

exists upon the medical staff of the State Hospital for Mental Diseases at Howard, R. I. For further information address ARTHUR H. HARRINGTON, M.D., Supt.
19-tfB287

PHYSICIAN'S OFFICE TO LET

Physician would be glad to share his office at 1069 Boylston St., Room 3, opposite Mass. Subway. Telephone Back Bay 7044. 16,tf., B340

DOCTOR'S ASSISTANT

Young colored lady desires position with doctor handling large practice. Capable of taking full charge. Graduate of massage. Best references. Address

A268, Care of
Boston Medical and Surgical Journal
19-1

WANTED

At Rutland State Sanatorium, assistant physician, single, class A school, recent graduate with general hospital training preferred. For information address

Dr. ERNEST B. EMERSON, Supt.,
Rutland State Sanatorium
Rutland, Mass. 19-4,B346

ASSISTANT WANTED

Apply to Dr. BUEHLER,
Cambridge Relief Hospital,
199 Prospect St.,
Cambridge 19-1,B347

PHYSICIANS

Advise the parents of that mentally deficient boy patient of yours to send him to an experienced Maine woman for a mother's care and training. For particulars apply to

BOX 154, POWNAL, MAINE
5-tf,B260

WANTED

Resident house physician in a private sanatorium-hospital. Either sex. Must have had some experience in nervous and mental diseases and laboratory work, and be single. Salary $1,800 and maintenance. Address

ARTHUR H. RING, M.D.,
Arlington Heights, Mass.
19-tf,B348

CLINICAL CHART OF RENAL DISEASES
By H. S. Jellalian, M.D., of Boston

Student and practitioner alike will appreciate this concise tabulation. For wall or desk. 15 x 10 inches. 25 cents.

Boston Medical and Surgical Journal
126 Massachusetts Ave., Boston, 17 Mass.
tf

ESTATE FOR SANITARIUM.

Twenty rooms, four baths, shower, lavatories, etc., hot-water heating and vacuum cleaner systems, all oak floors, modern in every respect. In situation, arrangement and conveniences particularly adapted for rest home or sanitarium. Large garage with suite, billiard and store rooms. About 50,000 sq. ft. land comprising entire block with many beautiful trees and no abutting property. Situated in Boston's most beautiful suburb. Low figure and terms. Further particulars from

CHARLES E. HOWE
12 Pemberton Square, Boston
Tel. Haymarket 2701 18-1,B345

PROTECTIVE ANTISEPSIS FOR MUCOUS MEMBRANES

Rhinol is a 10 per cent. suspension in powder form of Sod. Zinc. and Pot. Diodoparaphenolsulphonate, remarkably potent, but non-irritating bactericide. As a means of disinfecting and allaying inflammation of the upper air passages it is of unique value.

In all acute and chronic conditions of the nose and throat, such as Coryza, Rhinitis, Ozena, Adenoids, enlarged Turbinates, infection of the Sinuses, Pharyngitis and Laryngitis, etc., Rhinol will give prompt relief. Irritation, congestion, discharge and the attendant discomfort are immediately removed.

As a prophylactic in epidemic influenza Rhinol is of the greatest value.

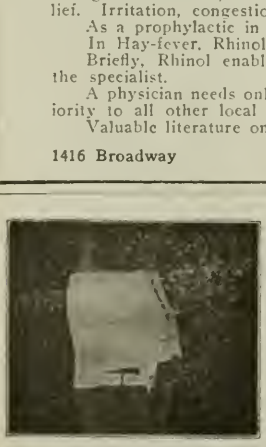
In Hay-fever, Rhinol is a specific, and complete relief is obtained within a week.

Briefly, Rhinol enables the general practitioner to treat his nose and throat cases as successfully as the specialist.

A physician needs only to observe the action of Rhinol in some bothersome case to recognize its superiority to all other local remedies for nose and throat affections.

Valuable literature on request. **RHINOL CO., INC.** *Price complete with insufflator, $3.00*

1416 Broadway New York City



THE STORM BINDER AND ABDOMINAL SUPPORTER

(PATENTED)

Adapted to use of Men, Women, Children and Babies

Modifications for Hernia, Relaxed Sacro-Iliac Articulations, Floating Kidney, High and Low Operations, Ptosis, Obesity, Pregnancy, Pertussis, etc.

Send for new folder and testimonials of physicians. General mail orders filled at Philadelphia only—within twenty-four hours.

KATHERINE L. STORM, M.D., 1541 Diamond Street, **Philadelphia**

BOURNEWOOD HOSPITAL

SOUTH STREET, BROOKLINE, MASS.

Established 1884

For a limited number of cases of Mental and Nervous Disease only
Post Office, Chestnut Hill. Telephone, "Bellevue" 300.
Nearest station, Bellevue, N.Y., N.H., & H. R.R.

GEORGE H. TORNEY, M.D.
Physician in Charge

HENRY R. STEDMAN, M.D.
Consultant

CHANNING SANITARIUM, Inc.

Wellesley Avenue, Wellesley, Mass.

(Established in Brookline, 1879. Transferred to Wellesley, 1916.)

Seven new buildings on fifty acres of high woodland. Sleeping porch and private bath for each patient. Large and small suite cottages. Separate buildings for men and women. Facilities for occupation and diversion. Complete equipment for Vichy, Nauheim and electric baths and other forms of hydrotherapy. Alpine lamp for heliotherapy.

Especially designed and equipped for the care and treatment of nervous cases.

DONALD GREGG, M.D. WALTER CHANNING, M.D.

ARSPHENAMINE
AND
NEOARSPHENAMINE

Curiously certain physicians in this country do not appear to realize that there is an *official American designation* for Ehrlich's preparations.

The German patents on these compounds and thousands of other German owned patents were, during the war, seized by the Alien Property Custodian and sold *en bloc* to the "Chemical Foundation," an American corporation organized for the public good and not for private profit.

Acting under the advice of an eminent professor of chemistry in one of our leading universities, who was appointed advisory arsphenamine expert to the Government, the terms *arsphenamine and neoarsphenamine* were adopted as the *official American nomenclature.* These terms should be employed by all loyal American physicians. *The word salvarsan is a proprietary trade name,* as are likewise the designations Kharsivan (English), Diarsenol (Canadian and American), Arsaminol (Japanese and American), Arsenobenzol (French and American), etc., etc. If one wishes to refer particularly to a brand name it is proper to use these terms, but if one desires to refer to the compound itself he should use the official term, Arsphenamine. There are indications that England will likewise adopt this name.

DERMATOLOGICAL RESEARCH LABORATORIES

(Incorporated as an Institute for Medical Research)

1720-22 Lombard St., Philadelphia, Pa.

Professional Cards

RING SANATORIUM AND HOSPITAL
Inc.

Arlington Heights, Massachusetts

Eight Miles from Boston
Telephone, Arlington 81

For Chronic, Nervous and Mild Mental Illnesses. Five separate houses permit of segregation and a variety of accommodations.

Boston Office—By appointment
496 Commonwealth Ave.
Telephone, Back Bay 8774
ARTHUR H. RING, M.D.,
Superintendent.

Devereux Mansion
MARBLEHEAD, MASSACHUSETTS

Not a Sanatorium. A pleasant country house where people in need of physical and nervous reconstruction find opportunity for carefully regulated work and rest. No mental cases received. Address

HERBERT J. HALL, M.D.

Dr. Mellus' Private Hospital
FOR MENTAL DISEASES

419 Waverley Avenue, Newton, Mass.
Reached by train to Newton, or by electric cars *via* Commonwealth Avenue to Grant Avenue.

Edward Mellus, M.D.

DR. TAYLOR'S PRIVATE HOSPITAL
For the Treatment of
NERVOUS DISEASES
ALCOHOLISM AND DRUG ADDICTIONS

House newly equipped and furnished, skilled attendants, good food, and comfortable rooms at moderate rates.

Methods of treatment are those proved best after 17 years' successful experience.

FREDERICK L. TAYLOR, M.D.
45 Centre Street, Boston
(Near Eliot Square) (Roxbury District)

MRS. SPINNEY'S HOUSE
A restful home for invalids and elderly persons, especially for the building up of convalescents amid attractive surroundings. Spacious piazzas, well stocked library, trained attendants.

MARY E. H. SPINNEY
17 Parley Vale, Jamaica Plain, Mass.
Tel. Jamaica 2280

Professional Cards

Wiswall Sanatorium
Inc.

A Sanatorium for the Treatment of Nervous and Mental Diseases

New Buildings, every facility for comfort; in midst of twelve acres of high land, covered with beautiful oak and pine trees, fully equipped for hydrotherapeutic and electrical treatment.

H. O. SPALDING, M.D.,
Superintendent
E. H. WISWALL, M.D.,
Asst. Physician
Wellesley, Mass.
Telephone, Wellesley 261

DR. GIVENS' SANITARIUM
(THE STAMFORD HALL COMPANY)
STAMFORD, CONN.

For the scientific treatment of Nervous and Mental diseases, Drug and Alcoholic addictions, and General Invalidism. Completely equipped for the care and comfort of patients—Hydro-Therapy, Electro-Therapy, Massage, Occupational Therapy and Amusements.

Located in a beautiful natural park of 100 acres, with numerous detached buildings, insuring privacy.

Fifty minutes from New York City on the New Haven Railroad.

Address
Frank W. Robertson, M.D., Pres. and Med. Dir.
Phone, 70 Stamford
New York City Office: 412 West End Ave.
Monday, Wednesday, and Friday at noon.

WOODSIDE COTTAGES
FRAMINGHAM, MASSACHUSETTS

A small sanitarium, pleasantly located on high ground, especially adapted to the care of chronic invalidism, rest cases, convalescents, and the aged. Separate groups. Committed cases not received.

Tel. Framingham 26.
FRANK W. PATCH, M.D.

GLENSIDE
For Nervous and Mental Diseases
6 Parley Vale,
Jamaica Plain, Mass.

MABEL D. ORDWAY, M.D.
Telephone, Jamaica 44.

Professional Cards

HERBERT HALL HOSPITAL, Inc.
WORCESTER, MASS. Established in 1872

A Hospital for the Care and Treatment of those afflicted with the various forms of Nervous and Mental Diseases. Accommodations for a few chronic quiet patients at special rates.

WALTER C. HAVILAND, M.D., *Superintendent*
H. LINCOLN CHASE, M.D., *Resident Physician*

Attleboro Sanitarium
Attleboro, Mass.

A place for concentrated rest, convalescence from operations or prolonged illness, treatment of nervous and chronic diseases and nutritional disturbances. Mental and tubercular cases not received.

Regulated exercise, massage, hydrotherapy, electrical treatments. Diet scientifically supervised.

Modern building, airy rooms, 100 acres beautiful park and woodlands, spring water, farm and dairy.

Resident doctors and nurses.

H. G. VAUGHAN, M.D.,
Medical Superintendent
Tel. Attleboro 869.

THE MILLET SANATORIUM FOR TUBERCULOSIS
EAST BRIDGEWATER, MASSACHUSETTS
C. S. MILLET, M.D., MEDICAL DIRECTOR

The Boston office of the Millet Sanatorium, East Bridgewater, Massachusetts, has been removed to
45 BAY STATE ROAD
Dr. Millet may be seen at this office on Tuesdays and Fridays between the hours of 11 and 1 o'clock.

TUFTS COLLEGE MEDICAL AND DENTAL SCHOOLS

The Tufts College Medical School offers a four-year course leading to the degree of Doctor of Medicine. The next session begins September 16, 1920. Students of both sexes are admitted upon presentation of an approved high school certificate and, in addition, college credit indicating two years' work in Chemistry, English, Physics, Biology, and French or German.

CHARLES F. PAINTER, M.D., *Dean.*

The Tufts College Dental School admits graduates of accredited high schools on presentation of their diploma and transcript of record covering fifteen units.

Well-equipped laboratories and abundant clinical facilities furnish opportunity for a thoroughly practical course in medicine and dentistry.

WILLIAM RICE, D.M.D., *Dean*

For further information, apply to FRANK E. HASKINS, M.D., *Secretary*, 416 Huntington Avenue, Boston, Mass.

THE NEW YORK EYE AND EAR INFIRMARY
School of Ophthalmology and Otology
For Graduates of Medicine

Clinics daily by the Surgical Staff of the Infirmary. Special courses in Ophthalmology, Refraction, Operative Surgery of the Eye and Ear, Pathology and External Diseases of the Eye.

The abundant clinical material of this well-known institution affords students an unusual opportunity for obtaining a practical knowledge of these special subjects. Two vacancies in the House staff exists in March, July, and November of each year. For particulars address the Secretary,

DR. GEORGE S. DIXON, NEW YORK EYE AND EAR INFIRMARY.

THE BOWDOIN MEDICAL SCHOOL

ADDISON S. THAYER, *Dean*
10 DEERING ST., PORTLAND, ME.

SYRACUSE UNIVERSITY
COLLEGE OF MEDICINE

ENTRANCE REQUIREMENTS: Two years in a registered College or School of Science. Combination courses recognized.

LABORATORY COURSES in well equipped laboratories under full time teachers

CLINICAL COURSES in the University Hospital, one general, one special, and in the municipal hospitals and in the dispensary adjoining the college, in all of which senior students serve as clinical clerks. Tuition $200.

Address The Secretary of the College of Medicine, 307 Orange St., Syracuse N. Y.

BOSTON UNIVERSITY SCHOOL OF MEDICINE

Founded 1873

REQUIRES FOR ADMISSION a minimum of two pre-medical college years including Chemistry, Physics, Biology, and, in addition to English, at least one foreign language.

REQUIRES FOR GRADUATION a minimum of four years of graded medical studies.

THE SCHOOL OFFERS: 1. A graded five-years' course, including hospital internship; 2. A six-year combination course with the College of Liberal Arts of Boston University, whereby a successful candidate may obtain the degree Sc.B., and the M.D.; 3. Eligibility to the Graduate School of Boston University to courses leading to the degree of Ph.D.; 4. A diversified curriculum covering the entire range of modern medical practice, including physiologic and homeopathic materia medica and therapeutics; 5. Unusually extensive facilities in the Boston City Hospital, Massachusetts Homeopathic Hospital, Haynes Memorial for Contagious Diseases, Robinson Maternity, Evans Memorial for Clinical Research and Preventive Medicine, and the Westboro State Hospital for the Insane.

Information gladly furnished on application to the Registrar,
EDWARD E. ALLEN, M.D., 80 East Concord St., Boston.

GRAND VIEW SANITARIUM AND HOSPITAL

547 Central Street, Winchendon, Mass.

A Modern Health Resort for Convalescent Cases, Semi-Invalids, and General Medical and Surgical Work. Beautifully located with views of Monadnock in the north and Wachusett in the south. Pine grove. Rates moderate.

Licensed Lying-in Hospital. Confinements a specialty.

Doctors' private patients will receive our special care.

Write for particulars.

Julia A. Nason, R.N., Supt. **Howard N. Nason, M.D.**, Physician

WET NURSES NEEDED
to fill increased demand at
WET NURSE DIRECTORY

Under the direction and control of the Infants' Hospital. Wet nurses may be obtained by telephoning to

THE DIRECTORY, Brookline 2930

BOSTON NURSES' CLUB, Inc., AND REGISTRY
339 BOYLSTON ST., BOSTON, MASS.

BACK BAY 8787
SWITCHBOARD WITH TWO TRUNK LINES

Graduate Nurse in attendance day and night.

Graduates, Undergraduates, Attendants, Hourly Nursing, Masseurs, Male Nurses.

MISS FLORA E. ROSS, R.N., REGISTRAR

"BELLEVUE"

Superior homelike accommodations for five patients. Nervous and Mild Mental Disease, selected cases of Alcoholism, and Elderly Women for whom medical supervision is desired, are received.

MARY W. L. JOHNSON, M.D.
158 WALCOTT ROAD, CHESTNUT HILL, MASS
Telephone, Brookline 5881-W.

MISS GERTRUDE M. NELSON

P. O. Box 16, Copley Square Station
Boston, Mass.

GRADUATE MASSEUSE

Swedish Massage, Medical Gymnastics
Residential Practice Only
Calls given prompt attention
References: Dr. George Stedman, Dr. John H. Blodgett

A POINT SCALE FOR THE MEASUREMENT OF INTELLIGENCE IN ADOLESCENT AND ADULT INDIVIDUALS.

Robert M. Yerkes, Ph.D., Boston, and Cecilio S. Rossy, M.A., New York.

A description of the examples and application of the Point Scale used in the Army and for other scientific work along these lines. Reprints may be secured from this office at

35 Cents per Copy

The Boston Medical and Surgical Journal
126 Massachusetts Avenue,
Boston 17, Mass.

WOODLAWN SANITARIUM

FOR THE CARE OF EPILEPTICS

DR. H. W. HAMMOND, *Supt.*
WEST NEWTON, MASS.

HARVARD DENTAL SCHOOL
BOSTON, MASS.

A department of Harvard University

Send for Announcement

A four-years' course

DR. EUGENE H. SMITH, *Dean*

Dioxogen

Why

is a supply of Dioxogen found in the emergency outfits or surgical kits of so many physicians?

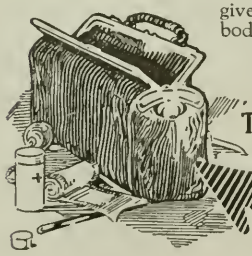
Because Dioxogen has proven itself the safest, most convenient and most potent antiseptic for all round use.

Because Dioxogen can be counted on to do all that bichloride or carbolic solutions can — without their toxicity or danger.

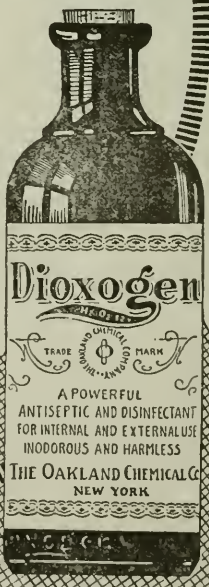
Because Dioxogen is odorless, colorless and does not stain the skin or clothing.

Because Dioxogen, owing its activity to pure oxygen, not only promptly destroys germ life, but rapidly promotes tissue healing and repair.

In brief, Dioxogen is to many a physician the antiseptic agent they prefer to all others, because they have learned from experience it combines germicidal efficiency with freedom from tissue injury. Like sunshine and pure air it destroys invading germs and gives strength and vitality to bodily tissues.



The Oakland Chemical Co.
59 Fourth Avenue
New York City



The Case For Coffee

Number Ten

Sancho Panza called down blessings upon the head of the man who invented sleep! Long before, the Arabs invoked the blessing of Allah upon the man who discovered coffee! Yet a popular fallacy has it that coffee is a potent cause of insomnia. Sleep is a phenomenon that we do not entirely understand. We sleep, not because of too much or too little blood in the cerebral vessels, but as a result of the action of a more or less automatic mechanism which cannot be directly influenced by the administration of any drug. Too much food will keep us awake—or again make us drowsy. Split protein products of normal or abnormal intestinal digestion may dull the brain or make it hyperactive. Extreme muscular fatigue may cause insomnia, the same is true of hyperactivity of the mind, anxiety, worry, or the effects of music, of drama or reading heavy or light literature. Auto-, or extra-, suggestion can cause many people to remain obstinately wakeful. The same quantity of coffee that is thought to keep some individuals awake puts others to sleep. Coffee in moderation has logically no more influence in causing insomnia than any of these other things in moderation. In excess, it may act as they act in excess—no more and no less. Most of the action of coffee in producing wakefulness, is due to suggestion. So too is the beneficial (?) effect of so-called substitutes for coffee. "Discrimination is the mark of a good physician."

Forbid coffee for sufficient reason in any individual case, but be sure that *there is* a reason.

Copyright 1920 by the Joint Coffee Trade
Publicity Committee of the United States

VICTOR

How Pride Impels Quality

There's a gratifying sensation in the pride that emanates from real accomplishment through diligent effort.

It requires more than routine manufacturing methods to inspire an organization to promote a spirit of progressiveness—in the true sense of the word. It is a self-assumed obligation to advance all existing standards for the benefit of all.

The Victor Trade Mark is recognized by the Medical Profession today, everywhere, as the symbol of progressive effort, experiment and research, to produce X-Ray and Physical Therapy apparatus a step in advance of the generally accepted standards.

With this spirit dominating a well-balanced organization, it is a safe conclusion that your investment in Victor apparatus is a sound one.

Victor X-Ray Corporation

Manufacturers of
Roentgen and Physical Therapy Apparatus

CAMBRIDGE, MASS. 69 Broadway — CHICAGO Jackson Blvd. and Robey — NEW YORK 131 E. 23d St.

Territorial Sales Distributors
CAMBRIDGE, MASS.:
MESSRS. SAXBY & OYLER
66 BROADWAY

A Big Story In a Small Nutshell

THE beginning point of many under-oxydation disorders lies in the improper cooking of food, and in the use of lard, animal fats, and ordinary cooking compounds, used in the preparation of food. These fats, because of their low burning point, "decompose" by the action of heat into products other than fatty acids annd glycerine.

The acrolein produced by burning is not only intensely irritating to the intestinal mucosa, but also prevents the normal secretion of digestive juices—thereby hampering digestive and metabolic processes, and preventing the proper isomeric transformation of the proteid molecule.

There is one way in which much of this can be prevented. This is by advising your patients to use Mazola in all their cooking and baking. Mazola has a higher burning point than other cooking fats or oils. It can be heated to 650° Fahrenheit, or more, before burning! Whereas, butter, lard, goose grease and cooking compounds burn at much lower temperatures.

Food properly cooked in Mazola is seared over by the heat—not soaked full of indigestible fats. Natural odors and flavors are retained. Food is rendered more digestible. The nutrition of your patient is enhanced.

Mazola is equally valuable as a salad oil, and as an easily assimilated fat—rich in lecithin and in phosphoros compounds—helpful in all wasting diseases, and to assist in conserving the integrity of the protein structure of the body.

Order your patients to use Mazola, Doctor, and note the immediate improvement that follows.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City

MAZOLA IS SOLD BY ALL GROCERS EVERYWHERE

"Just What a Ligature Should Be"

Armour's Surgical Catgut Ligatures, plain and chromic, Emergency (20 in.), Regular (60 in.) lengths.

Sizes 000 to Number 4 inclusive.

Smooth, strong and sterile.

Iodized Catgut Ligatures.

Smooth, strong, sterile and very pliable, 60 inch lengths only.

Sized 00 to Number 4 inclusive.

Made from stock selected in the abattoirs especially for surgical purposes.

Pituitary Liquid (Armour) ½ c. c. (obstetrical), 1 c. c. (surgical), oxytocic and stimulant. Free from preservatives.

Endocrine Gland and Organotherapeutic Products.

Literature to pharmacists, physicians and hospitals on request.

LABORATORY PRODUCTS

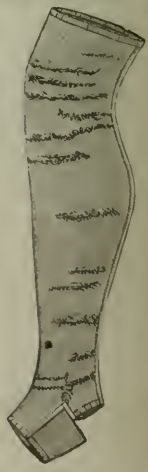
ARMOUR AND COMPANY
CHICAGO

NON-ELASTIC STAYS PREVENT ITS TEARING APART.

TRADE MARK

The
"MASTER"
Trade Mark
ELASTIC
STOCKING

PULLS ON LIKE A BOOT



A STOCKING WITHOUT STAYS SOON RIPS APART.

POMEROY COMPANY
41 WEST STREET - - - - BOSTON

PRESS OF JAMAICA PRINTING COMPANY, BOSTON, MASS.